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THE CRITICAL ISSUES IN THE PUBLIC DISTRIBUTION SYSTEM IN INDIA - A SURVEY OF LITERATURE

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The Critical Issues in the Public Distribution System in India -- A Survey of Literature

C. Annadurai

Scope, Coverage and Limitations -- Some Introductory Remarks

The main objectives of this paper are two-fold: (i) understanding the nature and characteristics of the critical issues in the Public Distribution System (PDS) in India; and (ii) identification of further researchable PDS issues for the benefit of future researchers. Among the already initiated Government Intervention (GI) instruments and strategies for the eradication of the basic problems of hunger, food, malnutrition and poverty, the instrument of PDS has been very important, socially, economically and politically. (The crippling and debilitating effects of these basic problems on the entire development process are too well-known to be re-emphasised in detail). The PDS itself has a package of GI measures, (originally called "Control Orders") which seek to strengthen the PDS. The questions of 'why the GI and the PDS' and 'how effectively the GI and the PDS function' are quite logical. (A little later, we shall provide logically derived answers to these questions). In fact, the entire PDS literature is a documentation of the set of conflicts that arise between the logic of Government and the logic with which the producers, consumers and traders of foodgrains operate. This survey paper is an attempt to capture, as clearly as possible, the set of problems and issues that cause these conflicts.

During the process of surveying the available PDS literature, it has become very clear that the problems and issues of the PDS have direct and strong relationships with a large number of aspects, more particularly with the changes in population, urbanisation, poverty levels, income levels, consumption levels, nutritional status, foodgrains production, marketing, storage, buffer stocks, Open Market prices (OM-prices), Public Procurement prices (PP-prices), Government price policies, Government subsidies, food policies, food politics, food management strategies, the efficiency of Government administration and so on. A "comprehensive survey of PDS literature" has the burden and compulsion of bringing into one paper a large number of complex issues belonging to all the aspects just mentioned. The challenge of conceptualising an analytical framework becomes still greater when the number of studies available in each of these aspects is also too large.

It was, therefore, realised that such a comprehensive survey of PDS literature would end up in a situation of having "too many eggs in one basket" and would surely run the high degree risk of analytical shallowness. In order to avoid these problems, a disaggregated and selective approach has been adopted. For the sake of our analytical convenience and thematic compactness, the wide variety of problems and issues, analysed by the PDS studies, were classified under three major themes. (We recognise that this is one way of solving the confronted problem. It could be solved in several other ways). Hence, the originally conceived comprehensive survey of PDS literature had to be split into three

separate analyses of "brought together" themes. Consequently, we have decided to bring out three separate papers. They are the following:

I. The Critical Issues in the Public Distribution System in India: A Survey of Literature.

II. A Review of Issues in the Supply Response and the Marketed Surplus Studies and their Implications to the Public Distribution System in India.

III. Market Prices, the Agricultural Price Policies, Food Subsidies and the Objective of Equity in India.

(Of the three papers, the first two papers are brought out together; the third separate paper will be published subsequently. This disaggregated and selective approach leads to some problems which we shall take up under "limitations")

In this survey paper, therefore, we have mainly concentrated on those PDS studies which analysed the problems and issues of the Public Procurement operations (PP-operations) and the Public Distribution operations (PD-operations). The PP and the PD constitute the two major components of the PDS. Under each of the two components, numerous activities are carried out by a number of agencies. Since `ration shops', `Fair Price Shops' (FPS) are the official names for the PDS in the earlier decades, we shall follow the usage of the concerned study. PDS is primarily for the protection and benefit of the Economically Vulnerable Sections (EVS). Different studies, including Government documents, have different terms to denote the EVS,

(such as "the poorest of the poor", "the poor", "the low income households", "the low income categories", "the neglected lot", "the starving millions", "the weaker sections", "the vulnerable sections", "the ultra poor", "the target population", "the poverty groups" and so on), but, throughout this paper, we uniformly use the term "EVS".

As indicated already, the large number of studies poses a real challenge. After careful selections, we have concentrated only on the most analytical studies on the PDS. Since the PDS functions within the food economy, we have included some of the well-known works on the food problem in India for documentation purposes. The coverage of studies has been ultimately limited to some of the leading research papers, theses, books and the Government Reports available to us. In order to satisfy the two basic conditions of purposeful width and analytical depth, the selected studies have been reviewed at three levels. They are as follows: (i) reviewing upto the very roots; (ii) reviewing only the main-thrust indicators; and (iii) reviewing merely for documentation purposes. The survey paper mainly covers the timeframe from 1960 to 1990. Slight deviations are allowed in view of the historical significance of some studies. Finally, the reviewed studies have been chronologically arranged in order to capture the slow and subtle changes that take place in the very development of the PDS literature in India.

The analytical framework of the survey paper gives rise to several limitations. However, we discuss briefly only a few

here. In spite of the wide coverage, there might be some well-known studies which are omitted or discussed less fully. This limitation is due to either time and space constraints or the non-availability of studies. Another important limitation is the repetition and the overlapping discussion of several basic problems and issues. In an author-oriented survey, (instead of issues - oriented survey) these problems have become unavoidable. One more limitation could also be observed. It relates to the slight tilt (both in coverage and discussion) in favour of the PDS studies of Tamil Nadu State. The injection of tilt is deliberate because some of the specific PDS issues of Tamil Nadu would be examined in future in much greater detail. In view of the forthcoming larger and deeper study, the tilt has been introduced.

During the review, we have tried our best to capture the main thrust, methodologies and the conclusions of the selected studies as conceptualised, analysed and concluded by the concerned authors or authoresses. In spite of the care and caution, some discrepancies might have crept into the paper. Finally, since we have split the comprehensive survey of PDS literature into three separate papers, the discussion in this paper on the issues relating to supply response, marketed surplus, PP-prices, OM-prices, Government food subsidies etc has been kept to the minimum. In order to gain a basic understanding of all the PDS issues in India, this survey paper should be examined along with the two other related papers mentioned above.

Organisation of the Survey Paper

For analytical convenience and thematic compactness, this paper has been divided into five Sections. Since the economic rationale and the objectives of the PDS in India are the very foundation of the GI, we discuss them in some detail in Section I. (All studies begin and end with them; but we dispose them of with a one-time discussion here). Under Section II, the most critical issues and problems of the PDS at the all-India level have been examined carefully and thoroughly. In Section III, the most critical problems and issues of the PDS at State-levels are discussed rather elaborately. Section IV is devoted to capture a synoptic view of the other significant studies which could not be covered in detail, either in Section II or in Section III, mainly due to the constraints of time and space. This survey paper is concluded with Section V in which some of the most important issues of the PDS in India that require further research and examination are identified and briefly discussed.

Section I

Development of the Economic Rationale and the Objectives of the PDS

In the ever growing literature on the GI measures relating to the food economy of India, we observe that the production aspects receive relatively greater attention. The aspects of distribution and the problems of consumption, especially across different income groups and the relative merits and demerits of having both the private traders and the Government agencies in the distribution network have remained for long a neglected area

of research. Along with this research trend, we also find a growing tendency to reduce the accessibility problem of food to a condition of "Food Availability Decline" (FAD), especially during food crises. The FAD-approach to the accessibility problem of food has become the most extensively used explanation for the occurrence of food crises in any country.

Amartya Sen (1976, 1981) had shown the futility of the FAD-approach and rejected it completely although it held a pre-eminent position in the Government's theory of food crises. Sen observed, "like the Phoenix, the FAD theory arose rejuvenated from the ashes and it can be found today chirping in the current literature on the food crises of the world". Sen believed that the entitlement approach to the accessibility problem of food should be considered analytically superior to the FAD-approach. The PDS is an example of what Sen termed "State transfer entitlement". Sen theorised that often food crisis resulted from the failures of entitlement relations of various kinds. The present day PDS could be considered as an example of Sen's entitlement relation. (The PDS entitlement relation has been built-up by both the State transfer mechanism and the private transfer mechanism).

There is also yet another approach to the accessibility problem of food. This approach analysed the problem in terms of supply and demand quantities. It presented only a simplified version of what is otherwise a complex problem, especially in a country like India. This approach has not recognised the social,

economic and political factors which play very important roles in solving the kind of food problem in question. These factors are as important as the natural factors in the determination of the relative strengths of the forces of supply and demand. The adverse working of these factors in relation to the higher population growth made the food economy a shortage sector. Among the State interventions in India, the GI in the food economy has been considered as the greatest experiement in the elimination of shortages of basic goods. This experiment has been closely observed, analysed and commented upon both within and outside India which resulted in the publication of numerous studies. Before we start examining the development process of the economic rationale and the objectives of the PDS, we briefly review the policies of the Governments upto 1943.

Government Policies upto 1943

A review of Government policies followed by the British rulers in India becomes essential for purposes of comparison and contrast with those pursued after the Bengal famine of 1943. The British Government's general policy of non-interference was observed to be in operation in the food economy also. The policy of non-interference became detrimental to the interests of the large majority of the population even during the normal years. When food scarcities and famines struck the land, a social and economic anarchy was let loose, resulting in epidemics, widespread starvation and millions of deaths. Bhatia (1967) critically examined the causes and consequences of the frequent and severe food scarcities and famines in India upto 1943.

There were 22 major famines between 1770 and 1900. While some of them were highly localised, others severely affected large areas of the country. The Bengal famine of 1770 was the first great famine which attracted the attention of the British rulers to the miserable food conditions prevailing in the country. This famine wiped out an estimated 10 million human lives which accounted for one-third of the population of the Bengal Province of 1770. The official reports of the various famine commissions appointed by the British Government, from time to time, contained plentiful statistics of deaths, human miseries and heart-rending anecdotes. They also provided a wealth of information on the socio-economic aspects and the extent of damage caused by failures of rainfall, floods and cyclones. On the terrible nature of famines and the irresponsibility of Government administration during 1858 to 1900, Romesh Dutt (1900) observed: "within the last forty years there have been 10 famines in India and at a moderate computation, the loss of lives from starvation and from diseases brought on by these famines may be estimated at 15 millions. It is a melancholy phenomenon which is not presented in the present day by any other country on earth enjoying a civilised administration".

Among the policies and aspects of the British Rule in India, the following factors could be attributed to the occcurrence of a number of food scarcities and famines in the country. (i) The land tenurial systems (Ryotwari, Zamindari and Mahalwari) never provided any incentives to the tiller of the land. And the

degree of exploitation of the farmers by the landlords was so high that it hardly left any interest for higher production. (The highly analytical study of George Blyn (1966), which examined the trends in agricultural output, availability and productivity in India, for the period 1891 to 1947, testifies the above statement). (ii) The British Government's strong belief in the laissez-faire policy left the trading and economic activities completely free and market-determined. The policy of free trade, based on the principle of laissez-faire, was regarded as the only agency capable of distributing supplies in such a vast country as India. In this connection, Bhatia (1967) noted: "The policy of non-interference with private trade even under conditions of worst famine, was sedulously followed". During the food crises, the Government witnessed the private traders indulging in hoarding, profiteering, speculation and in the methods of artificial creation of food shortage. But, no regulatory measures were taken to contain the anti-social activities of the private traders. Thus, the policy of non-interference by the Government was taken to the extreme degree. A Government of India policy resolution of 1897 read thus: "Even in the worst conceivable emergency, so long as trade is free to follow its normal course, we should do far more harm than good by attempting to interfere".

(iii) Another disastrous aspect of the Government administration was the policy of exports of foodgrains from India even during scarcity years. Exports accentuated and prolonged the scarcity conditions and pushed up the market prices far

beyond the reach of the masses who were constrained by very limited income power. Bhatia (1967) observed: "Even when famines occurred any suggestion to prohibit the export of foodgrains at least for the duration of famine was frowned upon". Persistent food scarcities and exports of the available foodgrains often drove the masses to privation, hunger, disease and death. After a careful analysis of the economic policies of the British rulers, Romesh Dutt (1950) observed that "the inequity of the land system (under the British rule), accompanied by a heavy taxation of the impoverished agriculture, resulting in the permanent poverty of Indian people", deserved very stringent condemnation. Romesh Dutt and others fully endorsed the "Drain Theory" put forward by the study of Dadabhai Naoroji (1888). Dantwala (1973) also provides an excellent survey of the studies which examined the nature and consequences of the British policies in India.

(iv) In spite of the experience of Britain, in the use of control measures during World War I, the British Government in India had not initiated control measures such as statutory pricing, rationing, quota system, monopoly purchase agency system and the trade regulatory measures. The use of control measures would have protected both the producers and the consumers of foodgrains. Bhatia (1967) rightly remarked: "the millions of deaths from starvation during the years of famine and scarcity must be attributed to the lack of a positive policy of the government on production and distribution of foodgrains".

Government Intervention Policies and the Economic Rationale of the PDS

The year 1943 becomes the cut-off mark as far as the GI is concerned. Since the Governments (both the Central Government and the Provincial Governments) were compelled to interfere in the food economy during this year, it is considered as a milestone in the GI literature. The first formal and official enquiry into the need, nature and degree of GI in the food economy was successfully made in 1943; its recommendations were presented in the Report of the Foodgrains Policy Committee (1943), Government of India (GOI). (Sir Theodore Gregory was the chairman of the committee). The Gregory Committee's recommendations, remedial measures and policy prescriptions became the very foundation for a lasting Government food policy in the country. During the four decades (1943-1980), the reports of various committees/ commissions of the GOI (more particularly the Reports of 1945, 1947, 1950, 1952, 1957, 1966, 1973a, 1973b, 1976) went into different aspects of GI in the food economy. The recommendations of these committees/commissions further strengthened the economic rationale of the PDS, originally formulated by the Gregory Committee. In addition, a number of sub-committees and technical groups, appointed by the GOI, have also enlarged the scope and the activities of GI.

The Report of the Foodgrains Policy Committee (1943) examined various aspects of the food economy under the shadow of a food shortage economy marked by sharp price-rise between 1939 and 1943, a severe and widespread drought during 1942-43, the

exigencies of World War II, stoppage of rice imports from Burma in 1942 and the outbreak of the great Bengal famine of 1943. (The Report of the Bengal Famine Enquiry Commission (1945) summed up the great human tragedy in India thus: "it has been for us a sad task to enquire into the course and cause of the Bengal Famine. We have been haunted by a deep sense of tragedy. A million-and-a-half of the poor of Bengal fell victims to circumstances for which they themselves were not responsible. Society, together with its organs, failed to protect its weaker members. Indeed, there was a moral and social breakdown as well as administrative breakdown". The Gregory Committee recommended a number of immediate remedial measures to be undertaken by the Central Government (CG) and the State Governments (SGs). The most important among them were: (i) policy measures for increasing the available supplies of foodgrains; (ii) importance of the PP machinery; (iii) securing more equitable distribution of food out of the availability through the extension of rationing; (iv) checking the price rise of foodgrains by the general extension of statutory price control; and (v) a thorough overhauling of the machinery of administration and readjustment of relations and functions between the Provincial Governments and the Central Government in order to achieve better coordination in all the food management strategies. In comparison to the non-interference policy followed upto 1943, these measures should be considered extraordinarily positive. They ultimately created a "two-market, two-price system" in India.

The 1943 Committee carefully considered three policy options

as the feasible alternatives but rejected the two extreme options of complete free trade (monopoly of private trade) and the complete State control of foodgrain markets (monopoly of Government trade). Of the two extreme options, the latter was considered as the 'logical solution' in the Indian context but it was ruled out as an operational possibility in the immediate future because of the necessity of a gigantic organisational and administrative Government machinery. After a great deal of discussion of the pros and cons of the two extreme options, the Committee ultimately decided in favour of the via media policy in which both the private traders and the Government trading agencies co-exist. In addition, the Committee also envisaged an increasing role for the Government in foodgrains trade. (This paved the way for the later policy statement of "reaching the commanding heights in foodgrains trade").

By redefining the functions of the Food Department and by devising the first official PP formula, (called the Basic Plan), the Committee explained the economic rationale of "the two-market, two-price system" and the most important role of the Government in it. Only under the via media option, the interests of both the consumers and the producers of foodgrains would be fully protected. In this option, the private traders would also be controlled and restricted, whenever they resorted to anti-social activities such as hoarding, black-marketing and speculation, and indulged in other methods of creation of artificial food scarcity. In the light of past experience, it was realised, that the market mechanism, if left to itself, could

not protect the interests of all sections of the society equally. Through the dual market system, the Government, in theory, would protect the interests of various sections equally. (We have explained the operational aspects of the economic rationale and the important role of the Government, in detail, under the discussion of the objectives of PDS).

The introduction of the two-market, two-price system has not meant total exclusion of the private trade from foodgrain marketing and trading. Private traders would still play an important and active role in the purchase and distribution of foodgrains. However, one of the major achievements of the new system would be that it makes the Government the first claimant in the marketed surplus of foodgrains. On the positive and constructive role of the new system, Henry Knight (1954) observed: "But for the energetic action taken by the central, provincial and State Governments, there might have been a number of disasters". (We shall come back to the detailed study of Henry Knight in Section IV).

The recent studies of Chopra (1981, 1988) have also examined the Government's food policy, the PDS and the implications of the changing balance between the private traders and the Government agencies. These studies are very critical and comprehensive. On the Indian option, Chopra (1981) observed: "The Indian genius lay in evolving a "via-media" between the two extremes ...... It turned out to be a very practical, even satisfactory solution of a rather ticklish problem". In great appreciation of the policy option recommended by the Gregory Committee, Chopra (1988)

commented thus: "The Report gave a clear direction on the side of food controls, rejected the laissez faire idea in toto prescribing the essentials .... These essentials have held the ground in India for well over one-third of a century. Some ups and downs have been there in policy; some changes and elaboration have been brought about in these essentials, from time to time, as experience was gained or the local situation so warranted. These postulates of Sir Theodore have, all the time, acted as the guidelines of policy for a number of years in this country. A perusal of the Report will be rewarding and of immense benefit even today to the food policy-makers."

The Objectives of the PDS

Among the components and instruments of Government's food policy, the PDS, over the decades, has become the most important instrument. The PDS has been used for achieving the specified welfare objectives of public intervention. Hence, a proper understanding of the objectives becomes very essential. Out of the plethora of Government's statements of objectives of food policy in India, the following could be derived to form the hard-core of the stated objectives:

(i) Achievement of a steady increase in the per capita supply of foodgrains, mainly through the mitigation of year-to-year fluctuations in production which, in the long-run, would ensure self-sufficiency in foodgrains. The Government seeks to achieve this, through the mechanisms of PP and PD. The offer of minimum support price (MSP) or the PP-price would act on the

farmers both as a price protection measure and as an incentive measure for greater production. The Government accepts, in principle, the additional condition of its willingness to purchase at the MSP any quantity of foodgrains offered by the producers of foodgrains.

(ii) Achievement of a more equitable distribution of foodgrains through the maintenance of the PDS. The PDS would strive to meet the minimum food requirements of the low income consumers at fair and reasonable prices. Maintenance of the PDS for protecting the vulnerable sections of society against the onslaught of higher OM-prices of foodgrains and other Essential Commodities (ECs).

(iii) Maximisation of the PP quantum through the internal production of foodgrains for achieving the objectives of: (a) the increased per capita supply; and (b) the more equitable distribution of the available foodgrains. For maximising the PP, the Government envisages socialisation of an increasing proportion of the marketed surplus. The increased PP would be directly channelled to the poor consumers of the PDS.

(iv) Maintenance of the OM-prices of foodgrains and other ECs stable and reasonable during all seasons of the year and across various regions of the country. By mitigating the fluctuations in foodgrain production to the maximum extent, the seasonal and regional variations in the prices of foodgrains would be considerably reduced.

(v) Maintenance of a sizeable buffer stock with a view to (a) smoothening the fluctuations in the availability of foodgrains and (b) stabilising the OM-prices. Buffer stock of foodgrains has been considered very important, because the very knowledge about the buffer stock with the Government would induce the producers of foodgrains to market a greater quantity of their produce. This is because the producers do not expect in the future any increase in the OM-prices of foodgrains. Buffer stock of foodgrains would also create confidence among the consumers of all sections. Due to the prevalence of confidence, the consumers do not make any speculative or panic purchases of foodgrains.

(vi) Imports of foodgrains from other countries would be resorted to only during times of internal shortages of foodgrains. And, imports of foodgrains would be possible only on the Government of India Account. Imports of foodgrains, which substitute the internal PP, would be minimised and eventually eliminated within the shortest possible time-period. The objective of self-sufficiency in foodgrains would be achieved through the increased internal production, and not through imports from abroad.

The economic rationale, the theoretical soundness and the welfare intentions of the objectives of the PDS are fine and highly appreciable. But the operationalisation of these objectives certainly present a bundle of dilemmas, controversies, puzzles, conflicts of interests of different groups and a wide variety of management problems. However, the Indian experience has shown that in spite of all these problems, the GI has created

an important structural change in foodgrains trading. It changed the theoretical solution of "one-market, one-price system" and established the alternative "two-market, two-price system" with partial State control of the food economy. Dual marketing and dual pricing came to be recognised as the legitimate economic entities. The establishment of the two-market, two-price system is a major breakthrough in comparison to the long sway of laissez-faire and the almighty role of the market mechanism. It should be considered as an alternative approach to the traditional theories of marketing and pricing. However, the problems of applications of the objectives of PDS, as we would see, are very real, and not just theoretical or statistical. In the next three Sections, (Sections II, III and IV), we shall examine the most critical issues and problems of applications of these objectives as raised, analysed and concluded by the leading studies on the PDS.

Section II

Most Critical Issues and Problems of the PDS: Some all-India Case Studies

From the time of the study of James Tobin and Hauthakker (1952), greater interest in the issues and problems of rationing and the PDS gained momentum. This study examined the postulates of the theory of rationing in the light of empirical evidences as observed upto the end of forties. This tradition of examination continued further in the sixties, seventies and the eighties, resulting in a large number of reported studies. What follows,

in the rest of the Section, are the all-India case studies of the same tradition.

In a leading and highly critical study, Raj Krishna (1967) analysed the effectiveness of Government operations in foodgrains for the period 1951 to 1966. This pioneering and evaluative study was based on the secondary data from a variety of sources (more particularly from the Bulletins on Food Statistics, GOI) and covered the entire country. The performance evaluation of the PDS was done in the light of the stated objectives of GI. It examined the GI policies on production, imports, distribution and buffer stock operations as implemented upto 1966, in order to find out, whether these policies have stabilised the fluctuations in the per capita availability of foodgrains. In all the analyses of relevant variables, the consumption stability of the EVS was kept as the central issue of examination.

In analysing the synthetic list of objectives of the PDS, Raj Krishna argued that they by-passed a number of conflicting and controversial issues of operational significance. Through trend analyses of the time series, and by using important ratios of the inter-related variables, the study derived a number of quantitative indicators of the failure of Government operations in foodgrains. The analysis of time series (1951 to 1966) for the 5 variables of production, Government purchase, availability, imports and stocks revealed year-to-year wide fluctuations. The fluctuations in the availability of foodgrains, per capita per diem, ranged from 6 to 13 per cent below the daily mean of 15.4 ounces or 437 grammes of foodgrains. Fluctuations during some

years ranged from 5 to 7 per cent above the daily mean of 437 grammes. Similarly, the supply of foodgrains increased as much as 11 to 14 per cent, or fell as much as 7 to 8 per cent in a single year.

The ratio of Government sales (distribution) to the total demand for foodgrains during the first 3 plan periods ranged merely from 6 to 9 per cent which indicated that the objective of providing price-relief to the EVS had not been achieved to a significant level. It was argued that even a conservative estimate of the EVS demand for foodgrains could not be less than 20 per cent of the total demand. The PDS distribution never exceeded 10 per cent of the total demand, except during 1966 when it reached a record level of 17 per cent. Similarly, the PP ratio to domestic output never exceeded the 7.2 per cent mark, obtained during 1951, in any of the later years. Based on the assumption that the marketed surplus constituted around 30 per cent of the total output, it was estimated that only 12 per cent of the marketed surplus was procured during I Plan period. During II and III Plan periods, the estimated ratios were 3.5 and 6 per cent, respectively. These magnitudes of the PP hardly indicated progress towards socialisation of surplus of foodgrains. Annual imports during this period almost doubled from 2.5 million tonnes (mt) to 4.9 mt. While imports during I Plan period constituted 50 per cent of the total distribution, they accounted for 75 to 90 per cent during II and III Plan periods. However, with reference to the aggregate demand, imports accounted for about 6 per cent, except during 1966 when

they touched the peak of 12 per cent of the aggregate demand.

Raj Krishna constructed 3 feasible alternative models (called "stability models") on the assumption that the primary objective of Government operations was to provide a given level of per capita consumption. Magnitudes of Government purchases, imports, Government sales and stocks were the 4 variables considered in the model-construction. Three policy options were developed and superimposed on the models and the models themselves were designed to stabilise consumption with minimum necessary imports.

Policy Option 1 : The desired per capita availability may be determined and kept constant over time. (This implies that the rate of growth of suppply just equals the rate of growth of population).

Policy Option 2: The total supply may provide for the effect of population growth as well as the growth of per capita income on the demand for foodgrains.

Policy Option 3: The total supply may provide for the full effect of population growth and only a part of the effect of growth in the per capita income.

In all the models, it was assumed that population and net output are known. Fixation of the desirable per capita supply or

availability of foodgrains plays a crucial role because for any given year, given the per capita supply and population, the aggregate demand can be estimated. And, given the estimated demand and net output, the total deficit or surplus can also be estimated. The actual per capita consumption of 1951 of 394 grammes per day was taken as the base year consumption. Based on the results, it was argued that, if the Government operations were rationally designed, the specifications of the models would have been met with a much smaller quantum of imports than the actual imports of 64 mt between 1951 and 1966. It was statistically deduced that the three models would have required only 17 mt, 53 mt and 32 mt of imports, respectively. Despite a much larger level of imports of foodgrains, the Government operations had not succeeded in stabilising the per capita daily availability during the entire period.

The study recognised the utmost significance of the examination whether the EVS or the target group got the intended average per capita distribution of foodgrains. The immediate need to establish "the two-market two-price system" and the importance of laying down the criteria for determining the target groups in the population were underlined. Out of a population of 439 millions in 1961, at least, 102 million persons deserved subsidised foodgrains distribution. This worked out to 23.25 per cent of the population but the study assumed 25 per cent of the population as the PDS target-group. The study excluded all the members of the income-tax paying families and the cultivator-families out of the purview of PDS. The study estimated that in

order to serve the target-group effectively, the Government should have distributed, at least, 16 mt of foodgrains every year, instead of the actual 5.5 mt every year. To do that, the Government should have purchased, on an average, about 19 per cent of the domestic output, instead of the actual 2.4 per cent, (or 63 per cent of the marketed surplus, instead of the actual 8 per cent). The purchases and distribution of such magnitudes would have reduced the import ratio to total distribution to 12.5 per cent per year, instead of the actual 72 per cent.

The critical significance of producing the required net output domestically, procuring the estimated quantum of foodgrains for the PDS and eliminating imports was emphasised. The question whether the models could be made operative, even without the correct forecasts of the variables, was also analysed. The study prescribed that the output growth should be higher than the combined effect of population growth, growth of per capita income and the income elasticity of demand for foodgrains. Considering the nature, frequencies and magnitudes of uncertainties and fluctuations in foodgrains production, it was strongly suggested that a reserve stock of 6 mt of foodgrains should be built-up within 3 years i.e., before 1971. According to Raj Krishna, uncertainties in foodgrains availability prevailed during 1951-1966 chiefly because of: (a) natural monsoon; (b) monsoon of Government behaviour; (c) monsoon of peasant behaviour; and (d) irrational management of the available food supply. He made a more rational projection of Government operations to be adopted during 1968 to 1971, which required the

maintenance of 6 mt of foodgrains of reserve stock, in addition to the normal stock. Based on the assumptions of two rates of growth of per capita consumption between 1968 and 1971, (0.73 per cent per year - option A and 1.02 per cent per year - option B), the study projected the required levels of distribution, procurement and imports for every year. Under option A, the Government will have to distribute 16 to 23 mt of foodgrains, or purchase 16 to 21 per cent of output with imports ranging from zero to 75,000 tonnes only. Under option B, the Government will have to distribute 17 to 26 mt of foodgrains and have to purchase 12 to 14 per cent of the output, with imports ranging from 5 to 12 mt of foodgrains. The study estimated that, by 1971, the Government would be required to annually purchase 20 mt of foodgrains (including imports, if any) compared to the 14 mt in 1966. To achieve that, the Government must purchase more than half of the marketed surplus which would "require a revolutionary change in purchase policy and administration". Thus, the major conclusion of Raj Krishna was: "the Government operations failed to achieve any of the stated objectives, even to a minimum reasonable extent".

The highly critical paper by Raj Krishna created a stir among the research professionals and evoked a number of heated responses from many. For example, Dantwala (1967), Madalgi (1967), Daya Krishna (1967) and others made critiques of the study immediately. We shall very briefly comment on the shortcomings and limitations of the study. In the analysis of foodgrains distribution, private trade and private stocks play a

very important role but the study left them out completely. Raj Krishna argued as though socialisation of surplus was an accepted Government policy. At least, with reference to the years around 1967, it could be stated that although a few committees had recommended such a measure, the Government did not adopt that as the Government's policy. Further, Raj Krishna observed: "There is no evidence of any serious attempt on the part of the Government to reduce the extreme dependence of its operations on imports". This seems to be overplayed and unnecessarily-provocative. When the domestic output declined sharply and the country was in the grip of inflationary pressure, larger imports and relatively smaller domestic purchase by the Government could and should be considered as a perfectly rational policy to be followed. Hence, Raj Krishna's criticism of imports was unfair and unjustified.

The stabilising influence of Model 2 in the study stipulated a per capita per day increase in consumption of about 0.65 ounces or 18 grammes or about 5 per cent increase. We cannot conclusively ascertain whether that level of increase in consumption will be the right level of increase to be aimed at even in the long-run. Through very detailed calculations and arguments, Madalgi (1967) had shown that the target population of 102 millions, (23 per cent of the total population), arrived at by Raj Krishna, was a gross under-estimation. Madalgi clearly established that 229 million persons in 1961 constituted the target population which worked out to 52 per cent of the total population. Further, the rationale for the exclusion of all the

cultivators from the purview of the PDS could also be questioned. This is because of the distress sales and the buy-back phenomena which are common practices in the country. (We shall elaborate the extent and magnitudes of these practices and the issues associated with them in Paper II, (details on page 3), which accompanies this survey paper).

Raj Krishna assumed the marketing of 30 per cent of output but he did not elaborate whether it meant gross output or net output. In his projections, he built-in the procurement-output ratio to increase to 21.35 per cent in 1971 from the 5.54 per cent in 1966. Expecting the ratio to go up by 3 to 4 times within 4 years seems to be highly unrealistic. Further, in spite of observing the continuous decline in Government purchases, Raj Krishna did not make a systematic attempt to examine the factors contributing to the decline. On the other hand, the study gives the impression that the exercise is only an attempt to find an imaginary solution for a real, basic problem of the society.

Raj Krishna evaluated the Government operations at a period when they were not even well-organised in the country. At least, for two reasons, the period upto 1967 was not the ripe and right period for evaluation. First, only from the Kharif season of 1965-66, the Government price policy was given a new dynamism. Hence, the initial two-year period should be considered as an experiment stage and too-short-a-period for any reliable evaluation to emerge. Secondly, the severe droughts during 1963-1966 created an extraordinary situation of food shortage in the

country. Another important shortcoming of the study was its complete reliance on the secondary data. An evaluation of a beneficiary-oriented programme will be incomplete without the data from the target group. The perceptions, reactions and opinions of the actual target group form as important a data-base as those of the secondary sources. The study also runs the risk of subsuming the success-stories of a few States or regions, as it has generalised its conclusion for the country as a whole. Since the PDS operations are the responsibilities of the SGs (with different levels of administrative efficiency) the all-India type of studies might cover-up the successful functioning of PDS in some States or regions.

Despite these criticisms and limitations, the study by Raj Krishna has been acclaimed as a significant contribution. Being one of the pioneering studies, it paved the way for a number of later studies in adopting its critical approach to Government operations in foodgrains. It also remains as a widely-quoted study because it focussed on the rational management of the available food in the context of known shortage of food. The study has also shown the importance of Government policies in solving the food problem through alternative strategies. The primary objective of the "stability models" was to stabilise and to increase the per capita per day consumption of foodgrains (with reference to the base year level of 394 grammes per capita per day). By keeping the stability and the growth in consumption as the central issues of the models, Raj Krishna has revealed the crux of the food problem in the country. His positive

contribution also lay in his categorical statement that the PDS should serve only the target population. He observed: "Instead of trying to introduce universal rationing on a widespread scale and keeping it always on the brink of collapse, the Government could have consciously chosen to serve only the most deserving quarter of the population through its FPS system. Thus, a legal, rational two-market, two-price system would have existed instead of the illegal two-market, two-price regime, which over-ambitious rationing and price control have brought into being".

The temporary arrangements and the ad hocism associated with the PDS even upto 1974-75, a year of food shortage and sharp price rises, made the economic status of the EVS, more vulnerable in the country. Gulati and Krishnan (1975), (henceforth GK), came out with an alternative PDS proposal which, when operationalised, would achieve a number of positive objectives to the maximum benefit of the EVS. The study was entirely based on secondary data which were statistically analysed in detail. Various analyses were done, both at the State-level (for all the major States) and at the all-India level, mainly relating to the critical aspects of the PP and the PD. The study concentrated primarily on three sets of issues: (i) the estimation of cereals needed for protecting the EVS against price rise; (ii) the development of an appropriate and suitable manner of internal procurement for meeting the estimated requirement; and (iii) the policy implications of the proposed scheme. The objectives aimed to be achieved were: (1) establishing a continuing and permanent PDS; (2) a comprehensive coverage of the EVS; (3) coverage of PDS

in all deficit as well as surplus States; (4) distribution of a minimum quantity of 280 grammes of cereals, per capita per day; and (5) making the PDS charge substantially lower prices for cereals vis-a-vis the OM-prices of cereals.

First and foremost, GK concentrated on the identification of the EVS in the population who required price protection against the free play of market forces. In their proposed scheme, the EVS constituted all the households in the urban areas and the non-cultivating households in the rural areas, including the entire agricultural labourers. Taking the ICMR (1971) norm of 370 grammes of cereals, per capita per day, as the minimum cereal distribution to be aimed at, GK had estimated the total requirement of 45 mt for the estimated population of around 575 millions in 1973. According to this estimate, 308 million persons or 53.6 per cent of the total population, qualified as the eligible population. However, GK had suggested that the number of family-members who belonged to the groups of Income Tax payers, self-employed persons, salaried classes and the families of persons involved in business and professions should be deducted from the eligible population of 308 millions. This gave them a figure of 298 million persons with a cereal requirement of 40 mt. Taking the cereal production during the quinquennium of 1970-74, this order of requirement meant 50.6 per cent of the net cereal output in the country.

Since this magnitude of requirement would exceed any known measure of the marketed surplus, it was considered not a feasible alternative. Hence, GK had to make a compromise on the 370

grammes of minimum distribution. They considered, therefore, yet another alternative criterion, in order to be practicable. The actual quantity of cereals, that the poorest among the EVS had already consumed (per capita per day), during a normal year, was taken as the criterion. The 19th Round of the NSS for 1964-65 provided the relevant consumption data for both the estimates of annual per capita average and the annual total requirement, (for distribution). They finally arrived at the figure of 101 kgs of cereals, per capita per annum (about 277 grammes per capita per day). The 101 kgs of cereal consumption was the actual annual per capita average consumption of the two lowest expenditure deciles belonging both to the rural and urban segments of the population. On this basis, for the estimated population of 1973, the total quantity, required to be distributed, amounted to 30 mt per annum. But the highest distribution during any single year upto 1974 was only 14 mt, (in 1966) which worked out to less than half of the estimated total requirement under the proposed scheme. The official claims of population coverage are very misleading because they represent the formally covered population rather than the effectively covered population. For example, in 1972, the total quantity distributed was only 10.5 mt of cereals but the PDS was said to have covered a population of 411 millions which meant a distribution of just 25.5 kgs per capita per annum - around 70 grammes per day per capita agianst the ICMR - recommended 370 grammes of cereals per capita per day.

GK had compared their estimates with those made in the Reports of the National Commission on Agriculture (1975, 1976)

(hereafter NCA). The NCA estimated a total annual requirement of 12 mt for a population of 136 millions with a per capita distribution of 124 kgs per annum (about 340 grammes per capita per day). Differences between the two proposals arose because of differences in the envisaged per capita minimum distribution and the extent of population coverage - the two most crucial issues in the bundle of PDS problems. The NCA population coverage was restricted to: (1) cities and towns with a population of over 1 lakh, (in 1971) excluding those in surplus States; (2) all industrial towns covered under the scheme of All-India Consumer Price Index Number for Industrial Workers; (3) the drought-prone areas with a reduced per capita distribution of 227 grammes per day instead of 340 grammes as in other areas; and (4) the flood-affected areas with distribution only for 3 months. GK had pointed out two glaring inequities in the NCA proposal: (i) coverage of only larger cities, but not all the urban areas; and (ii) exclusion of non-cultivating households in the rural areas, especially those of the agricultural labourers.

The study paid special attention to the extreme vulnerability of agricultural labourers who constitute around 30 per cent of the rural population. In analysing the relationship between the agricultural labourers and the PDS, the significant factor was the extent of wage payments made in kind. GK used the 15th Round of the NSS data which estimated the disposal of cereals by producer households in rural areas for 1959-60. The NSS data estimated that wage payments in kind accounted for 10.21 per cent in 1959-60. But, in view of the increasing trend of

cash payments during the 1960s and the 1970s, GK assumed only 5 per cent of the gross output going as wage payments. On this basis, they revised their total estimated requirement again to 25 mt per annum. The study was very emphatic on: (a) the minimum level of distribution of cereals per capita - at least the 1964-65 bottom-most consumption level of about 280 grammes per capita per day; and (b) distribution of cereals by the PDS at prices which are within the reach of even the most vulnerable of all sections, namely, the agricultural labourers. While justifying the substantially lower PDS issue-prices vis-a-vis the OM-prices, GK had also underlined the importance of interlinking the movements of wage goods prices with the movements of wage incomes over a period of time.

GK had also reviewed the trends and problems of imports and internal PP for the period 1951 to 1974. Dependence of the PDS on imports, largely the PL 480 imports during the 1960s, was substantial. Dependence on imports was as high as 60 per cent of the total PDS distribution in 1951 which further increased to 88 per cent in 1961. After a period of decline, again in 1966, the proportion of imports went upto 73 per cent but came down to 26 per cent in 1971 and touched the rock-bottom of zero-level in 1972. Imports had again shot up to 31 per cent and 45 per cent during 1973 and 1974, respectively.

The internal PP as proportion of net output was 9.5 per cent in 1951 which declined to 1 per cent in 1961. It started increasing in the 1970s but never exceeded 9 per cent upto 1974.

The year-to-year fluctuations, the wide inter-State variations in PP and the concentration of PP in a few States were the other important aspects which GK had analysed in detail. According to them, sharp fluctuations, both in absolute quantity and as proportion to domestic output, were caused more by the strength of the trading response than by the fluctuations of output themselves. Thus, under a system of traders levy, the proportion of PP to output becomes a function of the proportion that enters the trading sector. The negative relationship between output levels and quantities entering the trade sector creates, on the one hand, the problem of lower proportion of PP to output and, on the other hand, paves the way for greater degree of levy evasion and leakages of cereals.

When analysing the inter-State PP operations, GK had raised the problem of inequity (or absence of equity) in the distribution of levy burden among the farmers. It was shown that, under the scheme of traders levy, the farmers equally placed with respect to their output in different States bear unequal burden, either because the rates of levies are not the same, or because they are not enforced equally effectively. They argued that, in principle, this type of inequity resulting from inter-State disparities in the proportion of marketed surplus would not exist under conditions of State-monopoly trade. In this connection, they analysed the effects of the take-over of wholesale trade in wheat during the 1972-73 rabi crop. The take-over experiment was tried for only one crop season and, that too, just for wheat. However, the results of the experiement are more

significant. Although the quantities procured in 1972-73 accounted for over 90 per cent of the market arrivals in Haryana, Punjab, Uttar Pradesh etc there was a marked decline in the market arrivals themselves, not only in absolute terms, but also in relation to the output of wheat during that year. The quantities of wheat procured in 1972-73 declined in all the States; in Uttar Pradesh, PP declined by 3.2 per cent; in Punjab, by 14.9 per cent; and in Haryana, by 28.4 per cent. Such sharp declines in the PP were due to stocks being withheld "by farmers and traders in order to avoid paying the levy" - Economic Survey, (1974-75), GOI. GK also noted that the result of the switchover in 1973-74 to the system of 50 per cent traders levy was even more disappointing because the PP of wheat declined from 4.5 mt to 1.8 mt in 1973-74.

The question of equity, within a State and among the farmers differently placed with respect to their output, was also raised in the context of traders levy. GK enquired whether the levy burden and sacrifice had been distributed equitably among all farmers according to their capacities-to-pay. It was pointed out that, during the period of traders levy, the distribution of levy burden among the farmers within a State would depend on the proportion of output marketed by farmers which, in turn, would depend on the size of land-holdings cultivated by them. Extending the operation of the principle of diminishing marginal utility of income to land-holdings size, GK showed that under the three possible kinds of relationship between marketed surplus and size of holdings, (constant, positive and inverse relationships),

the levy burden of farmers becomes regressive. Through an example of complete backward shifting of levy burden to the farmers, GK had also shown the possibility of smallest farmers bearing the highest proportional sacrifice. Hence, they underlined the significance of taking into account the differences in productivity levels existing between the States, and the differences in the size of holdings existing between different classes of farmers within a State. In other words, they fully endorsed the view of the Report of the Agricultural Prices Commission (1967-68) which prescribed that the principle of equi-marginal sacrifice should become the basis for the fixation of levy rates, whether between different classes of farmers within a State or across States.

Having identified the inequities in the existing PP scheme, GK put forward an alternative scheme of producers levy which would have the following special features. (i) Levy imposition will apply to all cereals and not just to rice and wheat crops only. (This will be necessary to protect the interests of the most vulnerable consumers in the society). (ii) Levy rates for different States will be appropriately weighted for differences in productivity. (This would ensure inter-State equity and intra-State equity in the distribution of levy burden among the farmers and would also give a set of equivalent size-classes, either across States or across districts within a State). (iii) Levy rates will be varying according to size of family operational holdings under cereal crops. (They argued strongly in favour of family holding as the basis of levy fixation, both on economic

and practical grounds. They had also visualised certain effective sanctions against deceitful splitting-up of land-holdings - whether in the name of a family member or by benami transactions). (iv) Levy price for the standard variety will be uniform throughout the country. (Since adjustments for productivity differences are made, GK proposed to do away with the necessity of making adjustments for cost differences).

GK had also developed a set of progressive rates to be applied to the equivalent productivity-weighted size-classes of holdings. The levy rates were so developed as to maintain equity of levy burden among the cultivators of different size-classes. Thus, the States with relatively lower productivity would attract, either no levy, or attract only lower slab rates. For instance, in Maharashtra where productivity has been relatively lower, no levy will be leviable on farmers cultivating even upto 9 acres, although the general levy exemption limit will be only 2.50 numeraire acres. The two significant merits of this levy rate structure are: (i) the residual grain output after levy payment will be comfortably more than the consumption requirements of producer households; and (ii) the progressivity of the levy rates will ensure that additions to the residual output are smaller as the holding size increases. Thus, the levy rate structure plays a crucial role in the proposed scheme.

GK had also estimated the area operated by cultivators belonging to "equivalent size - classes" in different States and their likely share of contributions in the total PP. Data on the distribution of land holdings from the NSS Round for 1961-62 were

analysed. In using the NSS data, two assumptions were made: (i) the distribution of land in 1974-75 for operational purposes would not have changed drastically when compared to the distribution obtaining during 1961-62; and (ii) the distribution of land under cereal crops follows the same pattern as the total land. Further, GK had worked out the "equivalent productivity - weighted size-classes" and the percentage distribution of area for each equivalent size-class for all the States. The total area in each equivalent size-class will be multiplied by the corresponding levy rate of that State for estimating the total quantity of PP. The levy rates for each State are determined by multiplying the rates applicable to the numeraire size-classes by that State's relative productivity. On this basis, the proportion of cultivating households liable for levy payment in each State was also worked out. The proportion of liable households ranged from 15 per cent in Kerala to 76 per cent in Punjab. In most of the States, the proportion of liable households, as per the proposed rates, would increase by four times (400 per cent) compared to the 1974 proportion. Under the scheme, not only the proportion of liable cultivators among the States but also the proportion of output to be procured from each of them would be more equitably distributed. For example, while Punjab would contribute 52 per cent of its output, Kerala's share would be only 14 per cent of its output. Thus, the proportion of output to be procured from each State will be determined by the relative productivity and the size of distribution of holdings of that State.

GK had also examined more closely the feasibility of procuring 25 mt of cereals per annum or 30 per cent of net output of cereals in a year. They established the overall feasibility of this level of PP by analysing the feasibility of one deficit State (Kerala with 1.82 lakh tonnes) and one surplus State (Punjab with 37.18 lakh tonnes). However, the study emphasised that family holding should become the basis of assessment and not the individual holding as in Kerala during 1975. The study justified the PP in,deficit States also (despite the increase in the OM-prices in those States) on the ground that cultivators in deficit States have the privilege of disposing their marketed surpluses at much higher OM-prices than the farmers in the surplus States. Given the modest target of 280 grammes of cereal distribution, per capita per day, a total of 25 mt of cereals of PP per annum was considered absolutely necessary. In order to achieve the same, GK assumed the effective operation of the "political will" to implement the proposed scheme.

GK had also analysed the output fluctuations of all cereals from 1951 to 1972. They strongly suggested a scheme of PP of all cereals and a policy of building-up adequate buffer stock, either through internal purchases, or even through imports from abroad. They felt that both these measures are very essential both to mitigate the severity of year-to-year fluctuations and to effectively meet the pressing demand for foodgrains by the PDS, especially during years of sharp output decline. Under the proposed scheme, it was envisaged that a dual market and dual price system would function smoothly to the advantage of both the producers and the consumers of foodgrains. GK had also paid

attention to the aspect of growing population and the consequent compulsion to increase the PP quantum. They had further suggested a sur-charge on the levy rates as well as readjustment of levy rates themselves, once every three years, which would accommodate the changes in productivity of different States. They argued that in order to avoid any discrimination against the farmers of foodgrains, the farmers of non-foodgrains (commercial crops) should also be brought under levy scheme as in Maharashtra during the seventies. Since the proposed producers levy scheme would replace the traders levy, GK favoured the continuance of food zonal system which would restrict the inter-State movements of foodgrains and would make the PP a great success.

The study by GK, despite its being pioneering and innovative, suffers from a number of shortcomings and limitations. We, however, mention only a few important criticisms. First and foremost, the study adopts the basic objective of providing about 280 grammes of cereals, per capita per day or 101 kgs per capita per annum. This objective, even when implemented, fulfils only partially the ICMR-recommended minimum level of cereal consumption of 370 grammes per capita per day. This would leave the EVS to depend on the open market purchases at much higher OM-prices. Thus, the proposed scheme also would not fully meet the consumption requirements of even the EVS. Further, the average consumption of the bottom-most decile population, during 1964-65, cannot and should not remain as the objective level of consumption in the long-run.

GK had estimated the feasibility of 25 mt of PP. This would surely impose a huge responsibility of storage, transportation and distribution which might be far beyond the capacity of the existing administrative set-up. Given the complexities of the Indian sub-continent, (such as the extreme skewness in the ownership of land and other assets, the high degree of levy and tax evasion, the predominance of private trade in foodgrains with its manipulative powers and the administrative limitations of the public agencies themselves) the Government aiming to procure 25 mt of cereals, or 30 per cent of the net output, in practice, would prove to be an extremely difficult task. Even during the financial year of 1988-89, the PP was around 14 mt of foodgrains only. Out of a total record foodgrain production of 170 mt, this worked out to around 8 per cent of the net output (Economic Survey, 1989-90, GOI). If we deduct the component of pulses both from production and PP, the proportion of PP of cereals would go down further.

In his detailed critique of the proposal, Krishnaji (1976) explained the practical difficulties of achieving that level of PP. He observed that the proposal looked more like an enunciation of unexceptionable economic principles than like a practicable proposition. He observed: "GK's principle of equity among the States is in reality the transparent lament that, if only others sacrifice as much as do the Punjabi farmers, there would be no difficulty in raising 25 million tonnes". However, the nature and magnitudes of market arrivals in Punjab are entirely different from the market arrivals of other States. In

other words, the procedure of neutralising the productivity differences alone would not guarantee an assured PP of 25 mt of cereals in a year.

GK had not adequately and methodically analysed the failure of PDS at the all-India level. This failure was largely due to their reliance on the secondary data sources. They seem to have deliberately paid greater attention to the problems of PP rather than to the problems of distribution and consumption. Along with this kind of focus, the absence of primary data base also contributed to the neglect of distribution and consumption aspects. Throughout the study, GK tend to be pre-occupied with the target PP of 25 mt and with the working out of the appropriate levy rates for achieving the set target of PP.

The implementation of the proposed system depends on the validity of a number of explicit and implicit assumptions that the study makes. Often the assumptions made for analytical convenience do not hold good in practice. The two explicit assumptions of the study on the distribution of operational land holdings may not be valid considering the interval of 15 years from 1961-62 to 1974-75. Further, the proposed scheme implicitly assumed that all the families of the EVS would have adequate regular incomes to make purchases from the PDS, distributing cereals at "reasonably low prices". However, the results of other studies have indicated that such assumptions are not valid in actual experience. This kind of implicit assumption may not even be necessary if the study had discussed the dimensions of

providing gainful employment opportunities to the EVS. Providing employment opportunities will be much more important to the EVS than providing even a guaranteed minimum distribution of cereals through the PDS. Similarly, criticisms could also be levelled against the assumptions such as the proportion of kind payments to the agricultural labourers, the effective operation of the "political will" in implementing the proposed scheme etc.

In comparison to the OM-prices, GK had pleaded for substantially lowering the PDS issue-prices. Lowering the issue-prices could be done, either through increasing Government subsidy, or through substantial decline in economic costs. Economic costs primarily consist of fixed handling expenses such as packing, storage, freight, administrative overheads, interest charges etc. Such costs are fixed in nature and hence not easily variable, especially downwards. As regards subsidy, there has been a general criticism that, in the eighties, Government subsidy has been growing alarmingly. Thus, we find a number of limitations which work against lowering the PDS issue-prices.

GK had also suggested the imposition of sanctions against sub-division of lands and cereal levy evasion. But they had not elaborated as to what kind of sanctions could be imposed, and how and when. Although the agricultural sector remains an undertaxed sector, the Governments have not been willing to impose taxes on agricultural incomes despite the recommendations to this effect by a number of Committees/Commissions, including that of the Report of the Committee on Taxation of Agricultural Wealth and Income (1972). Thus, even when the recommendations for the

imposition of agricultural income tax remain unimplemented, the risk of imposing sanctions against cereal levy evasion can be easily imagined. Also, the overall unsatisfactory implemention of the land reform measures has been, by now, well-known. The extreme degree of precaution by the Governments in imposing such drastic measures has been due to the possible disincentive to greater production that these measures might cause to the farmers. (We shall analyse these and related issues, in great detail, in Paper III, (details on page 3). Thus, the applicability of such unspelt sanctions by GK would be very, very limited.

These criticisms, however, do not belittle the importance of the study by GK; for it has a number of superior features. Like the study of Raj Krishna (1967), the study by GK was very comprehensive, analytical and thought-provoking. We briefly mention below a few significant merits of the study. (i) It showed, in detail, the nature, magnitudes and directions of actions to be initiated by the CG and the SGs, if both the urban and rural poor were to be effectively covered by the PDS in the country. (ii) Instead of advocating the formal PDS coverage of the entire population, the study assigned to the PDS a limited and purposive role of protecting only the EVS with an assured minimum of cereal distribution of 280 grammes per capita per day. (iii) Throughout the study, GK have endeavoured to uphold and maintain the operation of the principle of equity of sacrifice - between States, between farmers, between the rural poor and the urban poor, and between the food and non-food crop-growers.

Their desire to operationalise the principle of equity made them devise the equivalent productivity-weighted size-classes across States. This should be considered as a conceptual breakthrough achieved by GK.

(iv) On all crucial aspects, the study analysed the secondary data separately for the country as a whole and for all the major States. This approach, while presenting the nature and magnitudes of total impact at the all-India level, also brings out the differential impact in the different States. (v) GK had illustrated their analyses very carefully by selecting two States namely Punjab and Kerala to represent a surplus State and a deficit State, respectively. Since these States represent the two extreme situations in the food availabilities of the country, GK's analyses present a highly-balanced focus. (vi) The study analysed the dynamic factors such as population, productivity etc. It also devised the procedures (sur-charge on levy rates and readjustment of levy rates once in 3 years) which would take care of the rates of changes of the dynamic factors themselves. Thus, the study is useful to the policy-makers not only from the point of its base year of 1973, but also for any later reference year. (vii) The proposal included levy imposition for non-cereal crops also. This, while maintaining the inter-crop equity, would also prevent allocation of increasing area for non-food crops. The study also recommended the PP and the PD of coarse grains through the FPS. This suggestion is consistent with the focus of the study on the EVS who are generally the main consumers of coarse grains. Thus, the merits of the study overweigh its

omissions and limitations.

As part of the doctoral research, Arvind Gupta (1977) examined the formulations and implementations of the PDS policies at the national level, especially for the period 1942 to 1975. In his critical study, Arvind Gupta developed a set of PDS alternative schemes by taking into account all the limitations and constraints with which the present system struggles to achieve the declared objectives. The study was carried out through statistical and econometric analyses of the secondary data, collected from a number of GOI sources. In studying the PDS policies and objectives, it focussed on the objective of protection of the EVS in the population. The study by Arvind Gupta is one of the few rare studies which concentrated on the policy - development aspects of the PDS in the country.

Since the focus of the study was to determine the extent of protection effected by the PDS to the EVS, the relevant factors such as the movements in real incomes, consumption changes in foodgrains, the price indices and the quantums of PDS supplies were analysed carefully. As per the study, the families of agricultural labourers, marginal farmers and the small farmers in the rural areas and the very low income families in the urban areas constituted the EVS in the population. While examining the directions and trends observed in the movements of the real incomes of the EVS, Arvind Gupta reported and discussed both the positive as well as the negative results of earlier studies, especially of the period of 1960 to 1975. The study also

independently analysed the all-India data (from the GOI sources, Rao (1972), ICSSR (1975) etc) on the movements of real incomes which revealed that the EVS in the population suffered severe erosion in their real incomes during 1965-1975. The erosion during 1973-1975 appeared to be more severe due to very sharp increase in prices of foodgrains. This erosion caused an actual reduction in the physical consumption of foodgrains, and, in spite of the PDS supplies !

The all-India, cross-sectional data from the NSS, for 1961 and 1966, were analysed to examine the various aspects of consumption changes over time, especially of the EVS in the population. Results revealed that the consumption erosion in foodgrains among the lower expenditure classes had occurred with much greater intensity than in the case of higher expenditure classes. Separate analyses conducted for the rural, urban and the city populations (combined sample for the 4 metropolitan cities, viz., Delhi, Bombay, Calcutta and Madras) had also indicated similar type of erosions. There was no possibility of maintaining a better level of consumption by the substitution of cheaper foodgrains as the EVS were already consuming the least-cost combination of cereals. The findings on consumption changes, considered along with the findings on the real incomes suggested that the consumption levels of the EVS must have touched the rock-bottom during 1973-1975.

The analysis of the composition of foodgrain consumption across different expenditure classes showed that a major portion of the EVS foodgrain consumption comprised of coarse grains. The

analysis of movements in the price indices for different foodgrains revealed that the rate of increase in coarse grain prices was higher than the rate experienced in the case of finer cereals. These findings, considered along with the movements in real incomes, indicated that the EVS in the population suffered more than the relatively better-off sections. Further, the analysis of movements in acreage under different crops revealed that while the area under the finer cereals increased, the area under the coarse grains declined, which also imposed additional pressure and burden on the EVS. In addition to these specific adverse results, the findings of short-term orientation and the ad hoc nature of the PDS policies, the year-to-year fluctuations in the PDS offtake, the effects of frequent changes in the definitions of the EVS, the changes in population and geographical coverages etc explained the ineffectiveness of the PDS in India. The study, therefore, underlined the need for evolving a new PDS policy framework which would be both feasible and effective in really protecting the EVS in the population.

The study by Arvind Gupta is one among the few studies which brought to the limelight the variations observable between the expected roles of the PDS at the conceptual level and the actual roles of the PDS at the operational level. The analysis of the operational aspects revealed that the relative advantage under the present PDS set-up would be more to the consumers of fine cereals than to the consumers of coarse grains, largely because, the price elasticity of demand for coarse grains is relatively higher. In order to clearly delineate the role of the PDS, the

study emphasised the proper definition of the relative status and requirements of foodgrains of the PDS policy and that of the buffer stock policy separately. In the Indian context, the lack of clear definition and understanding about the relative status and requirements of the two policies has severely handicapped the proper allocation of roles to the two policies. The study observed that during the periods of easy availability (through imports between 1956 and 1964) the PDS performed the role of the "mother policy" i.e., containing the price rise in foodgrains. (Even the emergency imports of foodgrains, especially wheat, from the USA under the PL 480 provisions, particularly during 1956-1964, generated a number of serious controversies regarding their effects on the internal production and prices of foodgrains as evidenced from the analyses of Schultz (1960), Sundaram (1970), Shenoy (1957, 1974) and several others). Consequently, even the role assigned to the PDS also could not be performed properly due to stoppage of imports from abroad and/or due to fluctuations and disturbances in supplies of foodgrains from internal production and procurement.

Since the existing PDS policy and/or the operational set-up failed to protect the EVS, the study by Arvind Gupta developed two broad alternative approaches and tested analytically their technical feasibility and their operational effectiveness. The first alternative was "the indirect approach", under which the Government would attempt to control the prices of foodgrains. Without the direct GI, the price instrument would be used to protect the EVS; so that consumption erosion would be prevented.

In the analytical testing of this alternative, Arvind Gupta assumed the option of free imports of foodgrains from abroad. By using the national level data, the indirect (price control) approach was found to be technically feasible as the price elasticity of supply is lower than the price elasticity of demand.

The requirements of foodgrains were calculated through the estimation of a simultaneous equation model containing a domestic supply equation, a procurement equation, an open market demand equation and an identity imposing the market clearing condition. The worked out projections of PDS requirements recognised: (a) different levels of growth in income; (b) the prevalence of different sequences of the likely conditions; and (c) different levels of PDS price indices. Projections of PDS requirements were also made for 1976, 1977 and 1978. The various econometric exercises carried out revealed that the projected estimates were highly sensitive to the rate of growth of income. The sensitivity to the index of PDS-prices was found to be fairly low. The level of requirement was found to be highly sensitive to the particular situation of food shortage. Under the shortage conditions, the projected requirement became staggeringly big and the level of imports itself became so significant that any disturbance in imports would result in the total collapse of the designed alternative scheme. Keeping in view the highly unstable nature of the requirement and the magnitude of imports involved, the study itself concluded that the alternative scheme developed in the model was operationally infeasible and should be rejected

straightaway.

The second broad PDS alternative developed by Arvind Gupta was "the direct approach" for protecting the EVS. Under this, the Government takes upon itself to supply the needed foodgrains at affordable price to the EVS. Although the net effect of this policy on the OM-prices would be in the upward direction, the Government would accept this, as the direct approach gives greater priority to the objective of real protection of the EVS. In other words, the guaranteed supply of the total requirement of foodgrains and the consideration of developing the most feasible and the most effective PDS alternative model were the more significant guiding principles of the direct approach. In estimating the requirements of foodgrains here, the study seriously considered (among the several estimates available in the literature) the three well-known estimates of population coverage; viz., Report of the National Commission on Agriculture (NCA) (1976), Vyas and Bandyopadhyay (1975) and that of Gulati and Krishnan (1975). According to Arvind Gupta, these estimates failed to define and evolve a PDS alternative policy and scheme which really protects the EVS. (We have already discussed the issues relating to the estimates of population coverage of Gulati and Krishnan (1975); and that of the NCA (1976); later we would also discuss the estimate of Vyas and Bandyopadhyay (1975) (in Section IV). Hence, we prefer, not to go into a detailed discussion of them here).

In view of the existence of a number of 'too ambitious' and

'infeasible' PDS schemes of the past, Arvind Gupta, under the direct approach, worked out just two PDS alternatives which would be both feasible as well as effective in protecting the EVS. In the first alternative, (called the "protective umbrella approach"), the Government would cover the EVS in the population both in the rural and urban areas. The second alternative comprised of imposing a statutory rationing scheme only on the urban population. In the development of alternatives, the extent of population coverage and the fixation of minimum requirement of foodgrains, per capita per day, (either in terms of calories, or in terms of physical volume) became the crucial questions to be determined. Among the several standard levels of calories, Arvind Gupta chose the one recommended by Sukhatme (1972), viz., 2250 calories, per capita per day, as the basic criterion.

The coverage of different proportions of the EVS from the rural and urban populations was another crucial decision to be made. Since the study took the feasibility condition seriously, it was unwilling to consider an alternative scheme which involved a quantum of PDS distribution that exceeded the maximum distribution already achieved in the past. This limiting condition, considered along with the calories criterion adopted (viz., 2250 calories, per capita per day) largely dictated the population coverage proportions. Accordingly, a coverage of 30 per cent of the rural population and 10 per cent of the urban population, both at the national level, were considered technically feasible and operationally effective.

The study, however, tested the feasibility of PDS

distribution achieving three desirable standard levels of per capita foodgrain consumption at the all-India level. Along with these desirable consumption levels, the feasibility of the two actual levels of foodgrain consumption attained during the 1961 and the 1965 NSS Rounds were also examined. The following were the three desirable standard estimates: (i) Dandekar and Rath (1971) estimated an annual per capita requirement of 225 kgs and 188 kgs of foodgrains for the rural and urban populations, respectively; (ii) Madalgi (1967b) estimated an annual per capita requirement of 187 kgs and 157 kgs for the rural and urban populations, respectively; and (iii) ICMR (1968) estimated an annual per capita uniform requirement of 135 kgs for both the populations. The fourth estimate was worked out on the basis of the actual per capita consumption of foodgrains, as provided by the 1961 NSS data (152.4 kgs and 109.4 kgs for the rural and urban populations, respectively). The fifth estimate was worked out on the basis of the actual per capita consumption of foodgrains, as provided by the 1965 NSS data (111.5 kgs and 86.1 kgs for the rural and urban populations, respectively). Since the three desirable standard estimates and the two worked out estimates gave a required distribution figure that was far greater than the maximum level distributed by the PDS in the past, the study considered all the standard estimates of distribution as the "non-feasible alternatives" and hence rejected them.

Under "the direct approach", the study also developed a second PDS alternative based on the rationing scheme, initially

meant only for the urban population. Keeping the feasibility condition and the calorie criterion, per capita per day, seriously, the choice had to be made between the rural and the urban area in implementing the rationing scheme. Given the imposed constraints, and after weighing the pros and cons of the considered alternatives, Arvind Gupta chose the urban population first (the 10 per cent of the lowest consuming households), leaving the rural population (the 30 per cent of the lowest consuming households) to be covered in the second phase. The main reasons given for the choice of urban population were: (i) it would soften the high level of effective demand, generally associated with the urban areas; (ii) it would involve no fundamental change in the existing PDS set-up; (iii) given the vocal nature of the urban population, it would create minimum socio-political repercussions; and (iv) the satisfactory fulfilment of `the second best solution' would pave the way for the implementation of `the first best solution', viz., coverage of the targeted population in both the rural and the urban areas.

Even in the recommended rationing scheme, two separate estimates of foodgrain requirements were made, on the basis of population and geographical coverages, called (a) and (b). Under (a), all cities with a population of over 1 lakh (according to 1971 Census of India figures) were included; and under (b), all cities with a population of over 4 lakhs were included. Further, the two sets of cities were considered at two levels of geographical coverage, viz., at the all-India level and for the deficit States only. Again, in the alternative rationing scheme

also, Arvind Gupta considered three standard levels of estimated annual per capita foodgrain requirements. They were: (i) the Calcutta standard (the permanent, statutory rationing quantum of 135 kgs, per capita per annum); (ii) the ICMR (1968) standard (135 kgs, per capita per annum); and (iii) the Madalgi (1967b) standard (157 kgs, per capita per annum).

Given the objective conditions and constraints, the study through elaborate statistical exercises showed the technical feasibility and the operational effectiveness of both the rationing schemes of (a) and (b). The schemes could be implemented by adopting either the Calcutta standard or the ICMR standard for the urban population of 122 millions in 1976. This figure of 122 millions worked out to only around 28 per cent of the population of India, reportedly covered by the PDS in 1974. While the suggested rationing scheme made provision for supplying the total foodgrain requirement of the targeted population, the PDS of 1974 supplied only a token quantity of the total requirement of the formally covered entire population. After the satisfactory fulfilment of `the second best solution', the study expected the extension of the rationing scheme to the targeted population in the rural areas. Through the suggested rationing scheme, Arvind Gupta showed the feasibility of achieving both the `mother policy' of controlling the price rise in foodgrains and the `facilitating policy' of buffer scheme and that of the most effective protection of the EVS. The study also suggested the introduction of discriminatory pricing as a policy instrument under the rationing scheme and emphasised the need to develop an

efficient buffer stock scheme for saving the rationing system from disintegration during years of food shortages as it happened after 1965.

In spite of the number of merits of this policy-oriented, pioneering study, we observe several limitations and shortcomings. However, we would touch upon only a few of them which have more serious implications. The first criticism could be on the level of recommended per capita distribution itself. By any standard, the level of foodgrain distribution contemplated in the proposed rationing scheme should be considered very low only, viz., 136 kgs, per capita per annum, or around 350 grams, per capita per day. It is well-known that this segment of the population (the defined EVS) relies mainly on foodgrains for its calorie requirements unlike the higher expenditure/income classes who consume a variety of non-foodgrain items and get their required calorie intake through them. Thus, there is really the urgent need to increase the per capita rationed distribution in order to make the rationing scheme fully effective for the EVS.

The study estimated the requirement for the years from 1976 to 1980 on the basis of the Calcutta standard. These estimates provided only for the effect of population growth; they assumed that improvements in the income levels would not add to the demand for foodgrains under conditions of statutory rationing. This assumption is not tenable as long as the per capita consumption levels are very low, especially in the case of the EVS. Under the widespread low consumption levels, any income

growth would have positive impact on the effective demand as brought out by the results of the econometric exercises of Arvind Gupta himself and reported earlier in the same study. This assumption is not tenable because it goes against the well-known Engels' law of consumption expenditure.

Another very serious limitation of the proposed alternative was that it left out the EVS in the rural population from the purview of the rationing scheme. The rural poor suffer as much as the urban poor from low levels of consumption and income, food shortages, rising prices, etc. Numerically also, they represent a larger group, (even according to Arvind Gupta, 30 per cent of the rural population belongs to the EVS); hence the task of safeguarding their consumption is not only massive but also more urgent. The proposed scheme also has not outlined any specific timeframe within which the rural population would be covered by the rationing scheme. Thus, the advisability of a scheme which leaves out the rural poor completely could be seriously questioned as it paves the way for perpetuating the "old urban bias" of the PDS.

Compared to most of the earlier studies, which have not estimated the subsidy amounts involved in their proposed schemes, (this criticism applies even to the well-known Gulati-Krishnan study, 1975), the study by Arvind Gupta estimated the levels of subsidies for all the developed alternatives. In this respect, it is more meritorious than most of the studies. However, the estimated subsidies, under all alternatives, in absolute terms, are staggeringly high. The pertinent question that for how long

the Government should bear the heavy burden of food subsidies need to be raised at one stage or the other. Unfortunately, the study by Arvind Gupta has not raised that question in any serious manner.

Finally, like most of the PDS-studies, the study by Arvind Gupta has not paid adequate attention to the qualitative aspects of the problem of food, viz., the nutritional inequalities across expenditure/income groups in the population. By taking even the liberal calorie conversion ratio of 3.5 per gram of foodgrain as estimated by Madalgi (1971), (Dandekar and Rath, (1971), estimated the conversion ratio only at 3.3 per gram), the recommended per capita distribution under the rationing scheme works out only to 1225 calories per day, on the basis of 350 grams, per capita per day, or 136 kgs, per capita per annum. With reference to Sukhatme's (1978) estimated calorie requirement of 2300, per capita per day, for "the reference man", the level of distribution proposed in the rationing scheme works out, qualitatively also, "very low". Thus, both quantitatively and qualitatively, the proposed distribution would not cover "the standard requirement of the reference man"

In their edited volume, Dholakia and Khurana (1979) covered different aspects and issues relating to the evolution, evaluation and prospects of the PDS at the national-level. (There were also a few case studies of State-level analyses). While some papers were based on the secondary data only, others had used both the published and primary data. But in all the

studies, the PDS-issues were discussed mainly from the point of view of management and administrative efficiency. The contributions (originally, national seminar papers) were made by economists, marketing and management experts and the senior officials of the CG and the SGs, belonging to the departments of Civil Supplies and that of the FCI.

The paper on consumer cooperatives elaborately discussed the positive and significant role played by them in the efficient functioning of the PDS. The weaknesses and failures of cooperatives and the necessary organisational and operational measures for overcoming those drawbacks were also indicated. Despite their widespread coverage, the cooperatives were doing a total retail business of just 4 per cent, leaving the 96 per cent to the private retail traders. As a matter of policy, both the CG and SGs have been encouraging the cooperatives to provide leadership to the consumer movement in the country and assisting them in a number of ways in order to develop a dependable public distribution agency. The paper on kerosene distribution in the country examined the existing consumption patterns, consumer behaviour, ground-level problems of the distribution, role of the CG and the SGs, the issues of distribution margins, consumer prices and the methods of increasing the per household consumption of kerosene over the years.

The role, size, structure and the functions of the Private Trade System (PTS) were examined by another paper. The study raised the problem of conflict arising out of the pursuit of public policies (with social welfare objectives) and the working

of the private trade (with profit maximisation objectives). The ways of achieving the public policy objectives of fair and equitable distribution of consumer goods at reasonable prices within the framework of the PTS were also discussed. The predominance of the PTS became very clear as there were over 2 lakh wholesale business establishments and about 33 lakh retail business outlets in the entire country. (by the mid-seventies).

It was observed that there was one private retail outlet for every 37 families in urban area and for every 50 families in rural area (1969 status). As against this, there was only one cooperative store for every 7000 families (nationally and one FPS for every 425 families (1975-76 position). For making the maximum use of the PTS, for the social welfare objectives, the policy options available to the CG and the SGs were also examined. The strong need for establishing coördination as well as cooperation between the PDS and the PTS was also underlined.

Another paper, included in the edited volume, evaluated the effectiveness of the FPS in the State of Uttar Pradesh. This paper was based on a larger study by Singh (1973) on the PDS of Uttar Pradesh. (Since we shall take up the larger study itself for detailed reviewing in the next Section, we prefer not to review the abridged version of the study here) The managerial efficiency and the economic viability of the FPS became the subject of examination of another paper. A small field survey of the FPS in the twin cities of Hyderabad and Secunderabad, in Andhra Pradesh, was carried out for the purpose during 1976.

Through stratified random sampling, 45 FPS were selected. These FPS were managed by 3 different categories of persons, viz., the ex-servicemen, the unemployed youth and the cooperatives. In the analyses of determinants of the income of the FPS, the existence period of the FPS, the number of ration cards serviced by each FPS, the volume of rice sales, the total sales and turnover of the FPS etc were examined. Among the various FPS activities, the crucial importance of the volume of rice sales became very clear. Only 7 out of 45 respondents (the FPS-managers) expressed satisfaction with their present level of earnings from the FPS. The question of economic viability of the FPS was paid special attention. This paper also highlighted the perceptions and problems of the FPS customers as reported by two other empirical studies, conducted in 1964 and 1972, respectively. In all these empirical studies, it became clear that customers felt unhappy mainly because of the four elements, viz., price, quality, availability of products and the quality of service rendered by the FPS, especially in comparison to the same elements at the parallel private retail system. The paper also made a number of policy recommendations with regard to harmonising different goals of operations, licensing, diversified product-mix, market research, finance, credit and the administration of the FPS.

In the context of the fast growing problem of educated unemployment, linking the employment promotion schemes with the more effective FPS could turn out to be advantageous to all the sections of the population. The Gujarat SG proved the feasibility and success of such an attempt during 1975-76.

Different kinds of strategies employed, and the positive results achieved by Gujarat, became the theme of another paper. This paper also reported the results of the study of the Agro-Economic Research Centre (1965) for Gujarat and Rajasthan which showed heavy overhead and wage structures of the departmental shop system (economically very inefficient) vis-a-vis the cooperatives and/or the private retail shops. Another paper reported extensively the results of two pilot-studies conducted in Bombay and Ahmedabad during July-August 1976. They assessed and compared the perceptions and images of the consumers on the various aspects of consumer cooperatives vis-a-vis their experiences with the private shops. The conclusions were of a mixed nature which revealed no definite preference to the cooperatives, either over the private shops, or over the departmental stores.

Another paper discussed, in detail, various operational problems faced by the FCI as the supplier to the PDS. The study focussed on the differences between the food policies of the CG and those of the SGs, the effects of frequent policy changes, the management of the Central Pool, the problems of physical movement of foodgrains to all places, (problems of deliveries at right time and at right places), the satisfaction of consumers in terms of their preferences, variety and quality of grains, the absence of the practice of weighing the entire stocks and the problems created by delayed payments made by the SGs. This paper concluded that the operational problems of the FCI were managed reasonably well from 1965.

The special problems of administering the PDS at the State-level were analysed by another study, especially in the light of the experience of Gujarat State. It discussed, in detail, the issues relating to the identification of the weaker sections, wider population coverage, consumer preferences, determination of the EC and their sales margins, diversification of product-sales, horizontal coordination, efficient PP and PD of foodgrains and the monitoring of price trends of all the EC. This paper rightly recognised the conflict arising out of the reconciliation of the objectives of public policy and the objectives of private trade.

In a lengthy paper, a senior Government official analysed, in detail, various activities relating to the monitoring of the prices of the EC and their availability status in the country. Analysis and reporting on prices, availabilities, production trends of the EC, (commodities from the agricultural and manufacturing sectors) and the surveillance of the channels of public and private distribution continue to be the most important activities of the monitoring machinery in the Government. The monitoring cell, either directly takes remedial and corrective measures, or acts through the State and Union Territory authorities. A number of examples were given to show the positive results achieved through the remedial measures initiated and carried out by the CG, from time to time. This paper also contains a wealth of information on the sources and kinds of price data, periodically published by the CG and SGs, and the data on the availabilities of the EC. It explained, in detail, the methods and procedures through which these data were

collected, collated, tabulated, analysed and reported for the benefit of all the sections of the population. In short, the paper by the Government official had established the crucial importance of monitoring the prices and availabilities of the EC in the country.

While analysing the relationship between the PDS and the rural poor, another paper made the proposal that the PDS should extend the consumption credit facility to the EVS in the rural areas. (The study noted that such consumption credit facility was already available to the consumers in the organised sector of the urban areas). The paper argued that, since the purchasing power of the rural poor, at any point of time, remain extremely low, and since the surplus farmers sell their products often to the "Outsiders", the extension of credit facility would directly relieve the local rural poor from the problems of food shortages. For recovery of credit, it was suggested that the credit scheme should be linked with the rural employment schemes. The conceived positive effects of the proposed credit facility, the expected operational difficulties and their implications to the rural poor were also examined.

Another paper emphasised the setting up of a public sector marketing corporation. The corporation should trade in a number of mass consumption goods. The study pointed out that since the consumption needs of the masses, by and large, remain neglected by both the large business units of the organised private sector as well as the units of the small-scale sector, the need for a

public sector marketing corporation became all the more important and urgent. Given the structure of consumer products industry in the country, the only option left for the Government is to develop a strong public sector marketing organisation, if the objective of protecting the EVS were to have an operational meaning. The paper had argued, very convincingly, that the establishment of such a marketing organisation would pave the way for surely meeting the basic consumption needs of the Indian masses.

Dholakia and Khurana, in their thought-provoking, critical, and concluding paper, highlighted the important weaknesses of the FPS and the cooperatives, and strongly recommended the immediate development of a comprehensive and coherent national distribution policy. They observed that this would necessitate broadening the objectives of the PDS, instruments of control, definitions of "vulnerable segments" and the commodity coverage of the PDS. They argued that the issue of improving the efficiency of the PDS could not and should not be considered in isolation from the overall question of a national distribution policy. The absence of a well-integrated national distribution policy has been a major lacuna in the Indian planning process. The distribution aspects (involving both the PDS as well as the PTS) should be given as much attention in planning and target achievements as the production aspects. They had also developed an analytical approach through systemic model and flowchart techniques which showed the feasibility and the emergence of a consistent and broadened national distribution policy with the objective of

maximising social welfare of all the sections of the population.

As part of his doctoral research, Narayanan (1986) studied the relationship between the demand level and supply level (consumption-production gap) and the bridging-role of the PDS. The study examined 15 major States of the country for the period 1957-58 to 1978-79. Consumption analysis was based on the published secondary data, (mainly from the consumer expenditure surveys of the NSS) the estimates of private final consumption expenditure of the CSO and the data of the food balance sheets of the Ministry of Food and Agriculture, GOI. The analysis of the NSS data for the years 1961-62 and 1972-73 revealed a declining per capita consumption in the case of rice and total cereals in all the States, both in the rural and urban areas. Only the per capita wheat consumption had increased substantially in all the States except Madhya Pradesh and Tamil Nadu. Considerable variations in the per capita consumption of rice, wheat and total cereals were found among different States, among different sections within a State and over time. Either in terms of per capita consumption or per capita rupee-expenditure, the decline among the lower income sections was found to be greater in comparison to the higher income groups in almost all States. The results of the NSS analysis were compared and contrasted with two other sources the results of which indicated no definite consumption trends.

Demand functions were estimated for rice, wheat and total cereals, separately for urban and rural areas through regression analysis. The explanatory powers of income, price, family size,

prices of the substitutes and population were discussed in detail. Demand forecasts were also made upto 1990 for rice, wheat and total cereals which showed an increasing trend in all the States, especially from the lower income sections. Estimates, with reference to 1972-73, showed that a significant proportion of the population lived under the level of poverty-line in almost all States. Similarly, supply functions were estimated; the patterns and trends of supply were examined; and supply forecasts were also made upto 1990 for all the States. The estimation results showed that the independent variables of the ratio of the area under HYV to the total area under the crop, the ratio of the irrigated area to the total area under cultivation, fertiliser consumption and the annual rainfall explained 75 to 99 per cent of the variations in production of rice, wheat and total cereals in most of the States.

A significant contribution of this study lies in its estimation of demand and supply gaps (D-S gaps) for the years from 1974-75 to 1978-79 for all the major States. The study distinguished the initial D-S gap from the final D-S gap. The initial gap represented the difference between the estimated per capita demand and per capita production. However, factors such as imports into a State, (other than those on GOI account), private stocks with traders, producers and consumers, inter-State transactions by road, various ways of inter-State leakages, injections through smuggling etc disturbed the initial D-S gaps. Of these influencing factors, the analysis included only those factors for which the data for a reasonable period were

available. The final D-S gap per capita was arrived at after adjusting these factors against the demand and production in the reference year and dividing it by population. The per capita D-S gap may be zero, positive or negative and may also be fluctuating over time. The analysis showed that the final per capita D-S gaps were substantially different from the initial D-S gaps in all the States, except the combined State of Punjab and Haryana.

Changes in production, PP, PD allocations from the Central Pool and population were found to be influencing the per capita D-S gaps in more definite ways than the other factors. Of these, the role of Central Pool allocations in bridging the D-S gaps increased from 1975-76, the year from which large operational stocks were held by the CG. The analysis showed the significant influence of Central Pool allocations in increasing the volume of PD, especially of the more deficit States. For example, during the reference years, Central Pool allocations to Kerala accounted for 94 to 99 per cent of its total PD; in West Bengal and Maharashtra, they accounted for 80 to 90 per cent of their total PD. The significance of Central Pool allocations for the PDS of more deficit States was also clearly established.

In view of the significance of Central Pool allocations, a model was developed to test whether the existing pattern of allocations helped in achieving stability in foodgrains availability and reduction in the D-S gaps. Analysing the data from 1974-75 to 1978-79, the model suggested a reallocation pattern for achieving both the objectives to a reasonable extent.

The model proved that, in almost all cases, the existing patterns of Central Pool allocations were determined neither on the basis of absolute D-S gaps, nor on the basis of the per capita D-S gaps of the receiving States. Taking into account the relevant constraints, the model was built up with the objective function of equalising the per capita D-S gap among all the States and over time. The results of the model revealed the effectiveness of the Central Pool allocations in reducing the per capita gaps in all the States and over time. The study concluded that if the model specifications and suggestions were followed, the Central Pool allocations would be a significant tool in the hands of policy-makers for attaining the objectives of increasing the per capita consumption and price stability through the PDS operations. The model implied that the Central Pool allocations would be distributed to the consumers through the PDS.

In a recent national-level study, Tyagi (1990) examined various complex problems of the Management of the Food Economy (MFE), with special reference to the working of the PDS. The in-depth and highly critical study on the food system of India analysed a number of inter-related issues which have a direct bearing on "the problems of the PDS". The study was based entirely on the secondary data, with an all-India coverage upto 1988-89. First and foremost, Tyagi identified three remarkable achievements of the MFE which sharply contrasted with the `exhausted and exploited agricultural sector', (Raj Krishna, 1972), inherited at the time of Independence. The achievements are: (i) higher rate of output growth than the population growth

rate; (ii) prevention of occurrence of famine in the country; and (iii) substantial increase in the physical and economic access to food. The study mainly focussed on the `central question' of whether a food system, primarily designed to cater to the needs of a deficit economy, could cope with the problems that would emerge in the changed supply - demand scenario in the country. The speciality of the latest study was its critical assessment of the functions and activities of several organisations, institutions, departments, ministries and agencies which have direct responsibilities in the MFE.

Through elaborate analyses, Tyagi showed that the rapid rate of output growth not only belied the threats and forecasts of authors like Paddock and Paddock (1968) on the likelihood of a famine in 1975 but also made the two major achievements possible in the country. In view of the past history, (which we have sketched in Section I), the prevention of occurrence of famine and the overall increase in the physical and economic access to food should be considered achievements of high order. The per capita availability of foodgrains was only 395 grammes per day in 1951 which increased to 478 grammes in 1987. The analysis of `seed correction factor', comparison of per capita income with per unit of foodgrains and the comparisons of trends in per capita income with the trends in prices of foodgrains clearly revealed the considerable improvement in the economic and physical access to food. However, during some years, consequent to sharp declines in foodgrain production, conditions became ripe for a famine. Avertion of widespread famine during 1955, 1966,

1967 and to a lesser extent, during 1973-75, 1979-80 and 1987-88 was largely due to the successful functioning of the MFE and that of the PDS.

The study explained, in great detail, various strategies adopted by the Government upto 1987-88 for attaining the objective of self-sufficiency in foodgrains. The new agricultural strategy, (package of HYVs, fertilisers, water and technology), introduced during 1966-67, enabled the farmers to shift to higher production possibility curves. The setting-up of the APC (now CACP) and the FCI in 1965 and their functioning within the framework of agricultural price policy adopted in the subsequent years had provided the capacity to sustain the tempo of foodgrain production generated by the new strategy. The study concluded that self-sufficiency in foodgrains should be considered remarkable because, in the process, the two basic problems of Indian agriculture, (numerous small holdings and variable climatic conditions) could be successfully overcome. In the 1970s and the 1980s, the agricultural price policy had been used as the main instrument of growth along with the upgraded agricultural technology. The detailed temporal and spatial analyses indicated that price policy favoured wheat production in the early phase, but after the mid-seventies, it was tilted in favour of rice production.

The analysis of trends in the Cost of Production (COP) of wheat and rice in different States indicated that cultivation of these crops was not profitable till the mid-sixties. The detailed analyses of average cost and the PP-price data, (made

available by the CACP) relating to the 1970s and 1980s, showed that the PP-price had always been higher than the average COP per quintal of wheat and rice. In addition, the higher rate of growth of these crops made the COP, in real terms, constantly declining. It was also shown that the PP-price helped the producers by forestalling an undue decline in the output prices during bumper harvest years such as 1971-72 and 1982-83. With specific reference to the drought years of 1979-80 and 1987-88, Tyagi showed that the MFE was working successfully through the GI programmes such as the PDS, the NREP, the RLEGP and the Food for Work Programme.

The study had also brought to the limelight some of the significant failures of the national food policy. The objective of safeguarding the interests of consumers, particularly the EVS, through the PDS, was taken up for examination first. The study analysed the following three issues before concluding on the EVS. The issues are: (i) whether the distribution of foodgrains in different States has been in proportion to the number of poor in each State; (ii) whether the quantities distributed in different States have gone to the really poor; and (iii) whether the share of supplies through the PDS and the difference between issue-prices and market prices, that would have prevailed in the absence of the GI, have been large enough to compensate for the increase in the OM-prices consequent to the PP.

A detailed analysis of the elaborate data-base across States led to several conclusions which have serious implications. The

most important conclusions were: (a) the per capita distribution of foodgrains in different States had not been consistent with the percentage of population below the poverty-line in those States; (b) the distribution of foodgrains had not gravitated, either in favour of areas with a higher proportion of the poor, or in favour of areas with a lower per capita income; (c) the distribution of foodgrains had not gravitated, either in favour of more deserving regions, or in favour of more vulnerable sections; and (d) either owing to smaller quantities of PDS distribution, or owing to greater differences between the OM-prices and the PP-prices or both, the PDS had made its consumers worse-off as they had to pay a higher average price than what they would have paid in the absence of the dual market system.

The study also found another major failure in the food policy implementation. It was the inability of the Government to ensure reasonable prices to the producers of coarse cereals such as jowar, bajra and maize. Their price trends showed greater fluctuations than those for wheat and rice. The OM-prices of coarse grains often ruled below the minimum support prices (MSP), especially during 1983-84, 1985-86 and 1988-89. The study argued that the case for greater procurement, distribution and the payment of full compensation (by the CG and the SGs) for the losses incurred either by the producers of coarse cereals (owing to price fluctuations) or by the PDS (owing to subsidised distribution) became even stronger than that for wheat and rice as coarse cereals are generally produced by the poorer farmers in the rainfed areas and are also consumed by the EVS. The study

also found the prices of foodgrains rising abnormally during some years, despite large stocks held by the Government. (For example, the prices during 1985 rose abnormally). It was observed that foodgrain prices went out of control, not during the drought years but during the years following them. The years following the drought years of 1979-80 and 1987-88 provided ample evidence. This unusual price rise occurred even when large buffer stocks were held by the Government.

The study also identified some important problems emerging out of the "self-sufficiency environment". The patterns of market arrivals and other related problems were analysed in detail. In comparison to the early sixties, the pattern of market arrivals in the eighties showed a high degree of concentration immediately after the harvesting operations. (For example, in Punjab during 1983-84, the concentration touched a record high of 96 per cent of the entire marketing season's arrival in just 5 weeks) This kind of concentration of arrivals made procurement by the FCI very inefficient and highly disorderly. It also created problems of transportation, handling and storage as the markets got choked with supplies within a short period of 4-6 weeks. These problems directly led to the huge burden of overhead cost of food storage which in turn increased the cost of PD and the PDS issue-prices.

The ever increasing difference between economic cost (PP-price + procurement incidentals + distribution incidentals) and producer prices also posed a great problem. In the 1980s, the difference touched as much as 54 per cent of the PP-price in the

case of wheat, and 43 per cent in the case of rice. In comparison to the cost of distribution of private trade, the cost of distribution of the PDS presented a highly cost-inefficient scenario at the national level. This meant that without the Government subsidies, the PDS selling prices would be much higher than the OM-prices themselves! (The OM-prices refer to the prices that would have prevailed in the absence of GI). The causes for and the trends in food subsidies upto 1987-88 were also analysed. In 1987-88, food subsidy exceeded Rs.2128 crores; *of which, the carrying cost alone accounted for* Rs.204 crores. The study also elaborated the major contributory factors to the phenomenal growth of subsidies and the serious consequences of the excessive buffer stocks. Further, Tyagi examined in detail the serious consequences arising from the non-adherence to the principle of equitable-sharing of food surpluses and food deficits by the States.

Reduction in imports, cereal supply exceeding cereal demand, *increases in the per capita availability* of cereals, vegetables, protective foods etc confirmed "the conclusion that India is on the threshold of self-sufficiency in the case of cereals". The crucial contribution of productivity-factor in the attainment of self-sufficiency had been explained, with illustrations from the experiences of different States. Tyagi also forecast that, "given the supply growth of about 3 per cent and the increase in demand being of the same magnitude, India would be a self-sufficient economy as far as cereals are concerned during the next decade" (1990s). Similarly, estimates of greater

procurement and distribution were made for the 1990s which might touch during some years, 45 mt and 34 mt, respectively. In the changed supply-demand scenario and the buffer stock position, the study recommended the greater involvement of private traders and pleaded for the removal of `public distrust' generally held against private traders.

The need for alternatives and modifications in the present system of MFE arose mainly because it failed to protect the interests of both the consumers and the producers. Further, the enlarged role of Government with its huge subsidy-bill adversely affected the price efficiency of the entire market system. However, the search for alternatives by Tyagi had been bunched within the framework of the dual market, dual price system. The objectives of alternatives suggested by the study aimed at greater fulfilment of the goals of food policy "at less and less cost". After detailed analysis of data, it recommended "the target-group approach" instead of the general "PDS-for-all approach". Greater procurement and distribution of coarse cereals, wholesale control by the Government rather than the retail control, limited procurement of wheat and rice through the MSP, payment of holding and storage cost to producers, greater involvement of private trade etc are some of the alternative policies which the study recommended for immediate implementation. Regarding the management of buffer stock, Tyagi recommended that, "only 60 per cent of the desired size of the buffer stock should be in physical terms and the remaining 40 per cent should be in the form of foreign exchange reserves. This

should be reviewed after 4-5 years and a further reduction may then become desirable".

The study also explored the question whether the present information system could adequately meet the requirements of policy planning in the "self-sufficiency environment". It outlined a number of improvements and corrective measures to be initiated immediately. While emphasing the high degree of reliability of statistics and their timely availability, the study also brought to light the important deficiencies, gaps and discrepancies in the official data-base, especially in the aspects relating to foodgrain production and availability and the consumption expenditure patterns.

In the treatment of the subject by Tyagi, there are quite a few shortcomings and limitations. First, the policy recommendation on greater procurement and distribution of coarse cereals by the Government agencies cannot be operationalised for a number of 'built-in weaknesses'. Greater production fluctuations, shorter life time, faster rate of deterioration, heavier storage losses etc are some of the more important weaknesses. For these reasons, it may not be possible to operationalise this recommendation even in the years to come. Further, while analysing the MFE during drought years, Tyagi mentioned about the role played by the employment and income generating schemes in the alleviation of food and poverty problems. However, the emphasis and weightage given in the analyses appear to be highly inadequate. We also observe this

weakness in most of the studies carried out in the area as would be evident from this survey paper. Most of the PDS-studies analyse the poverty issues marginally but do not go beyond that. Analysis of employment and income generating schemes along with food and poverty issues has been considered peripheral in nature. This kind of restricted analytical frameworks do not lead to meaningful policy decisions as they do not go to "the roots of the problems". It is the provision of gainful employment and generation of income among the rural and urban poor (the EVS) which could give them the much needed purchasing power to solve the problems of food and poverty, more fully and more permanently, rather than the highly subsidised PDS operations.

The study also contains some risky policy prescriptions. For example, the recommendation on the foreign exchange reserves, in the context of holding buffer stocks, may face serious problems at times. These recommendations, when implemented, may lead to a very undependable and dangerous situation because of: (a) the 40 per cent value may constitute a considerable proportion of the total foreign reserves available; and (b) any external contingency may thoroughly disturb the foreign exchange reserves position. (The unprecedented magnitude of foreign exchange reserves problem that the country currently faces, consequent to the "Gulf Crisis", should be an eye-opener in this regard). Finally, in the discussion of the alternatives, Tyagi recommended the target-group approach in preference to the general PDS approach. In that context, it was also suggested that since the policy decision to restrict the PDS only to the target-

group could not be taken at the level of a State, especially in the present politico-economic juncture, the CG should initiate policy measures towards target group approach. Although the suggestion of target-group approach is economically a sound policy, we very much doubt whether the CG will have the "political will" to implement this. Problems of implementation would arise mainly because of the sensitive nature of food issues and the number of difficulties associated with the identification of the real EVS in the population.

Section III

Most Critical Issues and Problems of the PDS: Some State-level Case Studies

The aggregate results and conclusions suffer from a number of analytical problems, especially in a vast country like India. They do not reveal the wide variety of experiences of the constituent States in the Indian Union. Further, the PDS operations are the responsibilities of the State Governments. Hence, it is more appropriate to examine the PDS problems and issues at the disaggregated levels of States. In this Section, we would examine some of the important State-level case studies, the results and conclusions of which could be compared and contrasted with those of the all-India case studies already examined. (Owing to the author-oriented discussion, (instead of the issues-oriented discussion) a few all-India studies would also be examined very briefly).

In the last three decades (1960s, 1970s and 1980s), many

studies had been carried out on the various problems of marketing and distributional efficiency. Of these, the study by Uma Lele (1973) becomes more significant and relevant for our survey. Uma Lele's examination was one of the earliest to recognise the significance of the relationship between the private trading activities and the Government food policies. The study examined the validity of a set of hypotheses in the context of the marketing of three major cereals, namely, rice, wheat and jowar. (i) The traditional market structure basically fulfils the essential conditions and attributes of a perfectly competitive market; (prevalence of a single price, involvement of a large number of buyers and sellers, product homogeneity, freedom of entry and exit, perfect factor and product mobility, perfect flow of knowledge and information among the buyers and sellers etc); (ii) all markets of individual cereals are closely interrelated (the interrelationship between price movements in two markets has been treated as price integration); (iii) as there is competition in wholesale trade, the inter-market price differences do not tend to be greater than transport costs; (iv) seasonal fluctuations in prices are consistent with storage costs and (v) milling margins are commensurate with milling costs and milling outturns. The study examined the rice trade in West Bengal and Tamil Nadu (1955-56 to 1964-65); the wheat trade in Punjab (1954-55 to 1964-65); and the jowar trade in Maharashtra (1959-60 to 1961-62). Price variations over time and space were analysed through statistical tools. Firsthand information packages were also collected through informal discussions with traders and

market officials on the aspects of trading practices, factors influencing storage decisions, market intelligence available to traders, the degree of free entry into the agricultural commodity trade, capital as a factor leading to monopoly, problems of cooperatives, transport facilities, the role of easy entry, the extent of partnerships and so on.

The presence of a large number of traders and processing agencies and a keen competition among them for the acquisition of the maximum share in the total volume of trade were observed. The examination of a vast body of price data generally reinforced the hypothesis of a high degree of competitiveness in regional trade. The regional price spreads, analysed on the basis of the recorded weekly wholesale price data were found to be generally commensurate with the costs of transport between the primary and terminal markets. In the post-harvest period, prices in the producing areas (primary markets) reached "the seasonal low" earlier than those in the terminal markets. Time-lagged transmission of price increase was accentuated by transport bottlenecks in the post-harvest period. The examination of the structure, capacity utilisation and the competition between the public, private and the cooperative sectors suggested that the rice-milling industry in West Bengal and Tamil Nadu was not only technically inefficient but also economically inefficient within the confines of a given technology. The analysis clearly showed the negative effects of Government regulations and policies such as milling licences and the threat of nationalisation of grain trade which strongly prevented any improvement in the market

structure and market price.

The study overwhelmingly confirmed that the grain trade in India operated efficiently within the technological and policy confines. If Government policies could be made to facilitate rather than discourage investment in the new storage and transport sectors and could be made to encourage technological improvement, the traditional market structure will be able to function economically still more efficiently. The study underlined the need for the introduction of a set of positive and facilitative Government policies and regulations which would improve the existing market structure considerably. For overcoming the deficiencies of the market structure, the study offered a number of suggestions and recommendations. One of the important of them was that the scarce governmental resources should be allocated to areas where private resources are not likely to flow abundantly.

The study by Uma Lele could be criticised on a number of grounds. However, we would limit to three major lacunae. First, Uma Lele has given undue importance to pure economic considerations and looked at market structure and market functioning from the narrow theoretical perspectives. It has completely neglected the question of how to solve the food problem of the EVS under the conditions of perfect competition and efficient market system, given the real problem of extreme economic inequality in the society. In other words, the operation of the principle of exclusion has been conveniently omitted. On the whole, it looks as though the results and

conclusions were generated to conform to the set of hypotheses with which the study began. Secondly, the sources of primary data of the study should be considered very weak as they were collected from the traders and market officials on their own incomes, costs, prices etc. Under-statement of incomes has been a common survey methodological problem found in most of the analyses. Thirdly, Uma Lele's description of Government policies and regulations as always leading to negative effects and preventing improvement in the market structure and market functioning basically questions the very welfare intentions of the GI. The study openly pleads for fewer Government policies; thus, it seems to advocate market laissez-faire. Despite these criticisms, the study by Uma Lele deserves appreciation since it raised the crucial problem of coordination between the private traders and Government policies in the context of a mixed economy. The chief merit of this study lay in its ability to influence and stimulate a number of leading studies on private trade and Government policy in the seventies and eighties.

Vincent Panikulangara (1976) studied the working of producer levy system in Kerala. In exercise of the powers conferred by section 3 of the Essential Commodities Act, 1955, the SG in Kerala issued the Kerala Rice and Paddy (Procurement by Levy) Order 1966, (henceforth the Levy Order). The PP has been in operation throughout Kerala since July 1966. The analysis of PP data for the period 1965 to 1974 showed a continuous decline, not only in terms of proportion to production but also in absolute terms, especially from 1969. The decline was explained in terms

of changes in the structure of levy rates, land-holdings distribution and magnitudes of levy evasion. The graded levy rates depended on scale of land operation and land productivity. Hence, the land-holdings in all the taluks in the State were classified into three categories, (A, B and C), according to their levels of productivity. Such land classification was done for each of the three paddy seasons. Levy rates went in a descending order over the A, B and the C categories. The paddy levy, as proportion to production, ranged from 10 per cent in the lowest productivity taluks to 80 per cent in the highest productivity taluks.

The average yield of rice per hectare increased from 1388 kgs in 1968 to 1575 kgs in 1973. Consequently, the distribution of taluks underwent changes in favour of higher productivity categories of A and B. During 1968-1974, the levy rates, the area covered by levy rates and the number of higher productivity taluks had increased. Given these increases, if no significant changes had taken place in the size of land-holdings and in the magnitudes of levy evasion, the quantum of PP must have automatically risen. However, the declining PP only showed large scale under-reporting of the size of land-holdings and the levels of output in them. The Levy Order prescribed that the cultivators should seek permission for harvesting the crop from village officers. Despite stringent amendments to the Levy Order, levy evasions were resorted to in a number of ways. Of these, the price differences between the OM-prices and the PP-prices always provided the sufficient economic incentive for levy

evasion. Under-reporting of area, output and sub-divisions of land holdings were the chief corrupt practices which led to levy evasion. Levy evasions were successfully carried out by sub-divisions through benami transactions, by making use of the loopholes in land ceiling laws and by converting the paddy land into garden land or dairy farms. Agricultural lands were sub-divided so rapidly in Kerala that the operational paddy holdings of 10 acres and above, which accounted for over 9 per cent of the total paddy area in 1966-67, declined to just 2 per cent in 1972-73.

Levy evasions were also resorted to through claims of exemptions and petitions of appeals under special circumstances. The Levy Order applied to the area under paddy for each crop but not to the gross area of the three crops of the year. It was shown that often the single-crop cultivators bore an unequal burden of levy while the cultivators with larger gross area escaped levy impositions. Further, the Levy Order took into account only the holdings of individual-cultivators, but not the cultivated area of the members of the entire household.

Levy rates were fixed in Kerala on the basis of the average productivity of a taluk, and not on the basis of individual holding. The taluk was too wide an area to have uniform productivity level. This provided another loophole for evading and/or reducing the levy liabilities of cultivators. It appeared that the Levy Order was only prospectively operative. If any instance of evasion was noticed, there was no provision in the

Levy Order to realise the correct dues or to impose fines on the cultivators. It did not have the power to award punishments to those who evaded or violated its clauses. The levy system largely went by faith and declarations of the cultivators. The examination also revealed that unless land classification and ownership were made uptodate and accurate, the Levy Orders could not operate successfully.

The study also provided empirical evidence relating to various methods of levy evasion from the data collected from Cheruvaikkal village. Through detailed analyses, Panikulangara showed that the Levy Order had failed to achieve its stated objectives in Kerala; it was full of loopholes; and levy evasion was rampant. On the question of procurement and distribution equity, the study aptly observed: "It is an illusion to hope for an equitable distribution of food, or any other product of labour, merely through legislation in a society in which political and economic power is based on private property".

The problems of the PDS of Karnataka were investigated by Rajapurohit (1978). Upto the mid-seventies, the PDS in Karnataka, through informal rationing, catered to the consumption needs of 11 cities and 13 towns; the rural areas were supplied with grains only when the cooperative societies made such demands. The study was entirely based on the analysis of secondary data, collected from a number of sources. It mainly concentrated on the analyses of the period from 1967-68 to 1974-75 and the comparisons of inter-district variations. Among the stated objectives of the PDS policy, the study chose to examine:

(i) the extent to which the creation of a parallel force in the market checked the foodgrain prices in general; and (ii) the extent to which the EVS in the population was protected and immunised from price rise.

The study estimated the availability, requirement and the extents of surpluses or deficits of cereals (mainly rice, jowar, ragi, bajra, wheat and maize) for the 12 size-classes of farmers in each of the 19 districts of Karnataka. The estimates of requirements included the non-cultivators also. These estimates were used in the determination of surplus farmers and the total quantum of cereal surpluses to be procured. On the basis of growth rates of cereal production and those of rural and urban populations, the study also made projections of cereal requirements (assuming constant per capita requirement) for the years 1976 to 1981. Statistical exercises revealed that Karnataka had reached the stage of self-sufficiency in cereals during 1976-77.

The significant trends and the relationships between the PP and production of cereals were examined. Rice was the main cereal of PP in Karnataka; jowar was also procured but its proportion was only insignificant. Ragi, bajra, maize and other millets were completely excluded from the PP. In 1970-71, the PP-operations formed 1.2 per cent of the cereal production; the PDS supply accounted for just 24 per cent of the total requirement. This clearly indicated the low level of PDS distribution of cereals in the State. Since the crop specialisation of different

districts varied significantly, the quantities of PP also varied widely from one district to another.

The study advocated the following four criteria to be adopted in the PP-operations: (i) inclusion of all cereal crops; (ii) production (rather than area) as the basis; (iii) exemption of subsistence farmers from levy; and (iv) full freedom for selling the entire marketable surplus after the payment of levy. The study had also developed a formula for the PP-operations.

$$\text{Procurement} = \frac{\text{Net Production}}{2} - 10 \text{ quintals}$$

(Net production should be divided by 2, and from the remainder production, 10 quintals of cereals should be subtracted to arrive at the levy slab).

According to the formula, the cultivator households would attract the graded levy rates if only the remainder production (after division and subtraction) is positive. The adoption of the PP formula necessitated the estimations of gross and net productions of cereals for all the 12 size-classes of farmers and for all the 19 districts of the State.

The study next turned to the issues of identification of the target group and the operational problems of the PDS in Karnataka. The NSS consumption data (28th Round) for 1973-74 were used in the determination of target group. The State average consumption of cereals was taken as the cut-off point. Those who consumed less than that average were treated as the target group. On the basis of 1973-74 consumption data, the

study estimated that over 25 per cent of the urban households and over 42 per cent of the rural households in Karnataka belonged to the target group and thus became eligible for drawing cereals from the PDS. In the determination of target group, this study had suggested a direct method, unlike the "method of elimination", generally suggested by many studies. The direct method regarded all those who do not operate land as the vulnerables in the rural areas. This meant that the target group, in the rural areas, mainly comprised of the landless labourers and artisans. For the identification of target-group households in urban areas, the study had treated income of the household as the main criterion. Households with a monthly income of Rs.200 and below, during the mid-seventies, became eligible for the ration cards. On the basis of 1971 population, the study estimated the target population for each of the 19 districts. For the State as a whole, 6.3 million persons - (4.5 millions from rural areas and 1.8 millions from urban areas) were estimated to constitute the target population. It was estimated that in 1981, this figure would go upto 7.8 millions.

Among the PDS operational problems, the study chose to focus on: (i) quantum of foodgrains available for distribution; (ii) composition of the food basket; and (iii) the economic viability of the FPS. With regard to (i), the study underlined the importance of equating the quantum of requirement with the quantum of availability through appropriate levy policies and levy rates. The food requirement of the EVS, both in rural and urban areas, comprised of coarse grains like jowar and ragi which

could not be met either through the PP of paddy or through the supplies of wheat from the Central Pool. For solving this problem, the study suggested the conversion of superior cereal like rice into coarse cereals like jowar, ragi and bajra through open market operations. The converted coarse grains could be distributed through the PDS.

Like several other studies, this study also found the economic viability of the FPS, especially in the rural areas, having direct links with the PDS offtake. Availability of cereals, prices, seasonal employment conditions etc were found to have determined liftment by the consumers. For ensuring economic viability, the study strongly suggested: (i) kind payments in all public works programmes; and (ii) introduction of Credit Card System by the cooperatives; "so that the card holders may lift the grains now and pay later".

The study rightly recognised the significant roles played by following prices: (i) farm harvest price; (ii) trader's retail price; (iii) PP-price and (iv) the FPS issue price. The analysis of prices by Rajapurohit explicitly focussed on two sets of relationships: (a) the actual relationships that prevailed between them; and (b) the normative and the desirable price relationships to be aimed and achieved. The study explained, at length, the possibility of best results accruing to both the producers and the consumers of foodgrains under the desirable price relationships. The study had emphasised that the cost of distribution should be maintained at the minimum and an indication of this could be found in keeping the ratio between

PP-price and the FPS issue-price as high as possible. (A ratio between 0.85 and 0.90 may be desirable). As early as in 1978, the study warned against the fast increasing cost of distribution in Karnataka State. (In Section II, we had discussed under Tyagi (1990), the serious implications of the problem of high cost of distribution at the all-India level). The study had explained, in detail, the desirability of maintaining the ratio between the PP-price and the farm harvest price at around 0.5, so that the interests of both the producers and the consumers could be protected to the maximum extent.

The study by Rajapurohit has several merits. However, it is not completely free from limitations and weaknesses. The following are the more serious limitations of the study. The study is based on secondary data only; the use of primary data is completely absent. This is a definite lacuna in the study. The problems and difficulties in the PDS as perceived by the consumers themselves will be missed in a study that does not collect information on consumption and distribution problems from the consumer-households. Further, in the direct method of target group determination, there is a serious drawback. Rajapurohit excluded the small and marginal farmers from the target group. This is because of the basic criterion of land operation followed in the study. However, the results of several studies bear evidence to the fact that many households among the small and marginal farmers depend on market purchases of foodgrains. A large majority of them may fully use the PDS-supplies, if they are provided the opportunity of eligibility and entitlement.

Thus, the exclusion of all the small and marginal farmers from the purview of PDS deprived them of the beneficial effects of the subsidised food distribution.

Rajapurohit had also suggested the conversion of rice into coarse grains like jowar, ragi and bajra. This suggestion, when considered along with one of the major conclusions of the study, gives rise to a number of problems. The study concluded that although the procurable potential in Karnataka was much larger, the actual level of PP of rice was very low. This meant that, at any point of time, the quantum of rice available for conversion would be very limited. With limited quantum of rice, often it may not be possible to obtain the required quantity of coarse grains. Further, there is the problem of the high-value rice commanding a larger quatity of low-value coarse grains. The suggestion of conversion and exchange also presupposes the availability of sufficient quantities of coarse grains in the open markets which cannot be assumed away, especially in the context of both sharp and frequent production fluctuations observed in the case of coarse grains.

In order to avoid the problem of underestimated statements of production by the farmers, Rajapurohit suggested working out standard yield rate for each and every district. These standard yield rates could be revised once in 5 years. The district, being a large geographical area, would contain numerous output figures, both on the basis of the number of households and on the per-acre or per-hectare basis. The standardised yield rate may

be advantageous to the minority among the cultivators (big cultivators) but disadvantageous to the majority of them (small cultivators). Thus, the district-level standardised yield rate would not ensure equity of sacrifice in levy payments by different classes of farmers.

Of the several studies carried out by Subbarao, only a select few would be taken up for brief review here. In his thesis-turned monograph, Subbarao (1978a) examined the economic efficiency of the paddy/rice marketing system as it operated in the West Godavari district (hereafter WG district) of Andhra Pradesh. He assessed the impact of public intervention, the potentialities of the present marketing system in meeting the future requirements and the relative roles played by the public, private and cooperative agencies. Marketing processes, methods of sales, handling, transportation, grading and storage were studied with a view to identifying the possible sources of imperfections arising from the structural characteristics of the marketing system.

Pricing efficiency and price formation at the village level were analysed from the data collected through field investigation in 5 villages of WG district. The field enquiry related to the agricultural year 1968-69. The analysis of market prices received by the farmers showed considerable inter-personal variations. Subbarao also studied the income losses (owing to levy imposition and the PP) of farmers of different classes. The results showed that the losses incurred were fully compensated. (Later, we shall examine the details of the results). The

infrastructural underdevelopment, (more specifically of rural road network, storage, warehousing, market yards, market centres etc), was found to be the common and most important source for the differential incomes of the farmers. Factors such as economies of scale and credit-ties affected the small farmers more, both as producers and as sellers of produce. After making detailed computations and analyses, the study concluded that the horizontal integration of wholesale markets, per se, had not ensured competitive prices to farmers. Vertical integration of villages with the wholesale markets was found to be necessary for transmitting the competitive wholesale prices to the villages. The competitive forces became very weak in the villages because of the low infrastructural development, and the low staying power of farmers. These factors gave the processor-buyers (millers) abnormal profits.

Government's regulating and licensing policies of the rice-milling industry were found to be more liberal which resulted in the installation of excess capacity. Even the imposition of compulsory levy on millers had not impeded the growth of the technically more efficient huller-cum-sheller mills. The levy proportions and levy prices and the unrealistic service charges fixed by the Government for the procurement and processing of paddy/rice did not cover the actual expenses incurred by the millers. This led to the emergence of undesirable methods of recovering profits through under-reporting of milled capacity (60 to 70 per cent of under-reporting during 1968-69 to 1971-72) and large scale tax evasion. The costs of operation of marketing and processing agencies were also studied. Public agencies incurred

significantly higher costs per quintal of rice than either the private or the cooperative agencies, towards wholesale distribution of rice within the district. Costs of operation indicated that private millers were the most efficient, followed by the public and the cooperative agencies. Transit and storage losses and the administrative charges of the SG were primarily responsible for the higher cost of PD. A number of measures and recommendations were also made for the overall reduction in cost of PP and PD.

Subbarao (1978b) has also examined the critical relationship between the market price behaviour and the PP-price trends in Andhra Pradesh for the period 1967-68 to 1975-76. The study related to the rice tracts of Andhra Pradesh but a more detailed enquiry was confined to the East and West Godavari districts where the PP-operations were heavily concentrated.

During the period of analysis, the PP was mainly through compulsory levies on rice millers and occasionally on rice producers. Levies on millers ranged from 50 to 80 per cent of the output milled. Different levy slabs were fixed for different size-classes of farmers, depending on area of cultivation, yield, sources and levels of irrigation etc. Inter-district movement restrictions prevailed upto the mid-1975, but were removed later. The production-PP relationship, analysed on the basis of secondary data, showed significant fluctuations ranging from 3.90 per cent in 1969-70 to 21.94 per cent during 1975-76.

Based on the State-level data, two hypotheses were developed

to test the data of West and East Godavari districts. The two hypotheses are: (i) the volume of PP is directly and positively related to output; and (ii) the volume of PP is inversely related with respect to the differential price between the OM-price and the PP price. Regression results showed that the relationship of (i) was positive and significant (+2.77 and +3.58 for West and East Godavari districts, respectively). However, the coefficient of (ii) was non-significant in both the districts. The volume of PP was observed to be inversely-related to the differential price between the OM-price of a deficit district and that of a adjoining surplus district. The differential price itself will be larger, greater the incentive for smuggling and levy evasion and vice versa.

The relationship between some non-price factors and the PP-quantum was also analysed. Changes in output, method of producer levy and movement restrictions on foodgrains were the non-price factors whose nature of relationship with the volume of PP was examined for the two selected districts. The regression results suggested: (a) the overwhelming importance of output and the fair-degree of importance of producer levy method; and (b) the adverse effect of movement restrictions on the PP-operations in the surplus districts. The study, therefore, inferred two policy implications. They are: (i) when the producer levy is gaining in importance, the inter-district movement restrictions are unnecessary; and (ii) movement restrictions become unworkable in practice where the surplus districts and the deficit districts are contiguous. The study also found that non-price factors

explained 90 per cent of the variation in the PP-quantum.

The analysis of the impact of levy policies on rice acreage and rice output suggested that the PP-price had not significantly affected producer incentives because it had been much below the OM-price and was also lower than the reported COP of paddy except during 1975-76. The PP-price of wheat presented a sharp contrast because it was almost as high as the OM-price and fully covered the COP. The study found that just as the high prices may be expected to have little impact on production under static technology, the low prices need not necessarily impair production under conditions of rapid technological change. The market intervention policies which distort the prices and the trade flows, especially where major producing centres are flanked by chronic deficit pockets, may have a counter-productive impact on the PP - (apart from having adverse effects on resource allocation). In regions with a high proportion irrigated area, aspects other than price policy such as development of short duration crop, low cost HYV seeds, improved technology (non-price factors) may be expected to influence the course of paddy production more than the movement of relative price.

In an important paper, Subbarao (1979) more specifically examined the working of producer levy scheme, the extent of levy evasion and the question whether compulsory levies (dual price system) entailed any income loss to the farmers. Data on levy slabs, levy evasion, the OM-prices and the PP-prices etc were analysed for the period 1973-74 to 1975-76. As against the

estimated surplus of about 40 per cent of the production, the actual procurement remained well below 20 per cent; only during 1975-76, the PP quantum touched 22 per cent. Levy evasion in the coastal districts was estimated at 60 per cent of the total imposition but for the State as a whole, it worked out to 75 per cent.

The study analysed the relationship between the PP and the incomes of the farmers. The sequences of events are as follows. First, the PP-operations reduce the total quantity of foodgrains available in the market. Secondly, they take away a certain proportion of foodgrains and sell them to lower income consumers who have higher price-elastic demand; the remaining quantum is left to those with higher incomes who have price inelastic demand. This has the effect of concentration of shortage among consumers who depend on the open market purchases. Higher the PP, higher the allocation to the PDS, greater will be this effect on the OM-price. Thus, the PP-operations push up the OM-prices for all classes of consumers. If the weighted average price (worked out from levy sale price and open market sale price) is not lower than the price that the farmers would have realised in the absence of levy, the farmers would incur no income loss on account of levy sales. The study concluded that the income losses of farmers owing to levy imposition got compensated by the higher-sale prices of the open market.

The relationship between output changes and price flexibility was also examined. Based on the output and price data, for rice, for the period 1973-74 to 1975-76, the maximum price flexibility coefficient needed to compensate the low PP-price was

worked out. Subbarao's maximum in the range came to <-> 0.31. He compared his price flexibility coefficient with those of the two well-known estimates of Thamarajakshi (1970) and Iyengar and Jain (1969). Their estimated price flexibility coefficients were <-> 1.10 and <-> 2.0, respectively. Since the worked out maximum of Subbarao was comfortably lower than the two earlier estimates, it was concluded that farmers got compensated for the lower PP-price through an increase in the OM-price.

Subbarao (1980) also assessed the PDS performance in Andhra Pradesh. The study covered the period from 1973-74 to 1975-76. The district-wise requirements of the PDS were estimated on the basis of two minimum norms: (i) the extent of population coverage; and (ii) the quantum to be distributed per consumer unit covered. By analysing the actual production and the potential PP data for rice, the extents of surpluses and deficits of all the districts were estimated; and by analysing the data for the desirable coverage and the actual performance of the PDS, the gaps in the PD were also estimated. The results showed that deficit districts outnumbered the surplus districts in Andhra Pradesh.

The study found that while nearly two-thirds of the population in Andhra Pradesh (mainly the agricultural labourers and the tribal population in chronically deficit districts) were denied access to the PDS rice, the SG contributed sizeable quantity of rice to the Central Pool which yielded a substantial amount of revenue from the CG in the form of subsidy. Subbarao

warned that on the basis of contribution to the Central Pool alone, Andhra Pradesh should not be classified as a "surplus" State. The study also underlined the immediate need for bringing down the high cost of PD in Andhra Pradesh. In conclusion, Subbarao observed thus: "the net impact of procurement-cum-distribution programme in the State on the poor consumers as a whole may be regarded as nil or negative".

The studies by Subbarao, however, suffer from several shortcomings and limitations. Subbarao uses the framework of perfect competition and the efficient market with which it is associated as the bench-mark. But he views the unequal relationships (unequal prices received by different categories of farmers) as manifestations of "imperfections" and "inefficiencies". These are clear deviations from the basic model and framework of analysis. His finding that farmers had not incurred income losses owing to levy sales was only based on the statistical analyses of secondary data. Such conclusions would be more reliable and doubly confirmed, at least with respect to the region of analysis, if they had the field data-base also. Further, some of his conclusions were based on the field data from one or two districts in Andhra Pradesh. Hence one cannot be sure about the extent to which these conclusions could be generalisable even upto the level of the State. Despite such criticisms, Subbarao's studies are considered in the literature as significant contributions.

Among the several contributions of George, in the areas of food and the PDS, we briefly review the works of 1979, 1980,

1983, 1984 and 1985. George (1979) examined the impact of the PDS from a number of angles and perspectives for the food-deficit State of Kerala. The PDS in Kerala had a population coverage of 97 per cent, more evenly spread both in urban and rural areas. The study was mainly based on secondary data from different published sources and the analyses carried out in the study covered the period from 1952-53 to 1975-76. Primary data were also collected from a household survey on consumption aspects. (The survey was conducted just for a week, during November 1977). Through random sample, 100 households from two villages were selected for this purpose.

The trends in agricultural production, per capita availability of foodgrains and the per capita calorie intake were analysed in detail. Although the largest proportion of agricultural area was allotted to rice production, the quantum of rice produced in Kerala fell short of its requirements, making importation of rice and wheat a necessity. In terms of per capita availability of food and per capita calorie level, Kerala remained below the national average. Calorie deficiency was observed to be greater in the rural areas of Kerala compared to the urban areas.

The analysis of production and the PP data, for rice, from 1966-67 to 1975-76, showed a declining trend (from 7 to 3 per cent) and often they were negatively related. The declining trend and negative relationship between them were explained in terms of land reforms, population pressure and other State

intervention measures that led to reduction in the average size of land holdings. The volume of PP was found to be influenced by: (i) the gap between the OM-prices (farm level prices) and the PP-prices; (ii) level of production and (iii) effectiveness of a particular method of levy. As the gap between the two prices increased, the volume of PP fell. It was observed that for a given PP-price, the quantum of PP increased as the OM-prices fell; and for a given OM-price, the quantum of PP increased as the PP-price increased. The negative relationship observed for rice in Kerala was in sharp contrast to the strong positive relationship observed by George (1978) in the case of wheat production and wheat procurement at the all-India level.

Ration offtake of rice was not explained by the usual demand variables (consumption levels, prices and incomes) but by production of rice within the State and the Central allotments of rice and wheat. However, the PDS - wheat offtake was explained by rice offtake, the OM-price of rice and the price of tapioca relative to wheat price. The EVS obtained about two-thirds of their household consumption of rice from the ration shops while the high income households (HIH) obtained only about one-third. The EVS supplemented their ration rice with tapioca, (a cereal substitute) but the HIH purchased open market rice at higher prices.

The analysis of impact of ration system in Kerala showed the following three important beneficial effects: (i) improvement in the consumption levels, especially of the EVS; (ii) contribution to positive income redistribution, both among the producers and

the consumers; and (iii) the SG benefited from the CG transfer payments through food subsidies. These effects collectively were found to have reduced the inter-State and intra-State income disparities. Elimination of rationing and the movement restrictions would have led to reduced consumption levels of rice in Kerala and resulted in an overall net income loss to the producers and the consumers. In the absence of rationing, the decline in consumption levels would have been the highest in the case of EVS. Since the OM-prices remained much higher than the PDS issue-prices, in the absence of ration system, all the households would have been compelled to incur far higher expenditure on rice consumption alone. Thus, while paying special attention to the EVS, the ration system financially supported all the households too.

The partial analysis indicated that the gains that accrued to Kerala were much greater than the expenditure incurred by the CG in terms of consumer subsidy. In a comparative analysis, rationing strategy proved superior to direct-income-transfer strategy with reference to the short-term objectives of increasing the consumption levels of the EVS and effecting a positive income redistribution from the rich to the poor. The cost-benefit analysis of the ration system was approached from an entirely unique angle also. The study examined the possibilities and implications of obtaining the entire supply of foodgrains from the international markets at international prices. The estimated costs and gains corresponding to the actual levels of operations during 1973-74 to 1975-76 indicated that even such a

scheme would have resulted in positive net gains to the consumers in Kerala. The study also found the high level of public awareness, public services and the flexibility of the administrative arrangements in Kerala exerting great influence on the overall efficiency of the PDS.

The consumer price subsidy programmes are often critically and sceptically viewed for the following main reasons: high budgetary allocations, (on a recurring basis), large administrative opportunity costs, depressing effects on domestic agricultural prices, leakages to non-target groups etc. This study by George concluded that such obstacles could be overcome through appropriate procurement, pricing and distribution policies. The food subsidy scheme was also found to be comparatively more cost-effective in achieving the consumption objective than a general income transfer policy. The most important among the empirical findings was the observed reduction of skewness in the food consumption levels of different income groups.

However, we find a few shortcomings in the study. The relative merits and demerits of rationing and direct income transfer and their long-term impact on employment and growth linkages, although recognised, were not fully analysed. Often the short-term objectives may be inconsistent and self-defeating in comparison with the long-term objectives. Since the empirical coverage was limited to just 100 households, the analytical procedures used may not sufficiently measure the efficiency

losses of rationing or the trade-off between such efficiency losses and distribution gains. Despite the positive contribution of the ration system in Kerala, we cannot recommend the extension of the Kerala-type ration system straightaway to other States because they may not have the preconditions and advantages of Kerala.

George (1980) analysed the 17th, 19th and 28th Rounds of the NSS data for the period 1961-62 to 1973-74 and examined the structural changes in the consumption patterns at the all-India level and their policy implications. In the rural areas, the per capita monthly consumption of all cereals declined from 17.53 kgs in 1961-62 to 15.09 kgs in 1973-74 - a fall of 13.9 per cent. During the same period, in the urban areas, it declined from 12.7 kgs to 11.32 kgs - a fall of 9.2 per cent. In both the areas, the fall in the total cereal consumption was the net result of a decline in the consumption of rice, jowar and other cereals and an increase in the consumption levels of wheat and bajra. The consumption of coarse grains also declined from 34.9 per cent share in 1961-62 to 30.9 per cent in 1973-74 in the rural areas. For the corresponding period, it declined from 17.9 per cent share to 14.3 per cent in the urban areas. Separate trend analyses were done for the top and bottom quartile households and for all the consumer households covered by the NSS Rounds.

The analysis of price data revealed that, between 1961-62 and 1973-74, the consumer price of cereals increased at a faster rate than the increase in general prices. The urban prices of cereals were found to be above the rural prices by 16 per cent

during 1961-62. 6 per cent in 1964-65 and 10 per cent during 1973-74. The handling cost, higher marketing margins and the higher proportion of coarse grains in the rural diet tended to widen the gap between rural and urban prices. The concentration of the FPS, the relatively easy availability of wheat in them and the dominance of wheat consumption in the urban areas (38 per cent) tended to narrow down the gap in prices. However, the rate of increase in prices moved in a different direction. Between 1961-62 and 1973-74, while the price of cereals in the rural areas went up by 210 per cent, it increased only by 195 per cent in the urban areas. Further, the cereal prices for consumers belonging to different income groups remained different because of quality difference, mode of purchases, (frequency, location, bulk purchase etc), composition of different commodities in total cereals and the extent of PDS-purchases. Nevertheless, the analysis of cross-section data bore the evidence that the urban EVS derived greater benefits from the PDS.

Analysis of changes in the consumer expenditure in Rupee terms over time, (in current prices), showed that the per capita consumption expenditure rose sharply both in the rural and urban areas. In spite of the adjustments being made for price increases during the period, the per capita expenditure fell by 13.3 per cent in the rural areas and 9.7 per cent in the urban areas. This implied a net reduction in the per capita consumption of cereals in physical terms. The expenditure proportion on all cereals went up from 37.6 per cent in 1955 to 43.4 per cent in 1973-74 in the rural areas and from 22.5 per

cent to 26.8 per cent in the urban areas during the same period. While the expenditure proportion on rice remained more or less stable in both urban and rural areas, the expenditure proportion on wheat had gone up substantially, indicating increasing trend in wheat consumption. The results of the analyses of changes in income and price levels during 1961-62 to 1973-74 explained only about half of the fall in the per capita consumption of cereals in the urban areas and about three-fourths of the fall in the rural areas.

Within the overall declining cereal consumption in the country, the relative performance levels of the rural and urban households were also analysed. George used the Burk's procedure (1961) of isolating the influence of price changes on the reported distribution of households in different expenditure categories. The results of this analysis indicated that, between 1964-65 and 1973-74, while the proportion of the EVS in the rural areas had slightly increased (deterioration of income distribution) the urban households showed a slight improvement in their income distribution. On the basis of a number of his findings, George concluded: "The observed constant levels of per capita consumption of low income consumers in the urban areas, in spite of a decline in per capita consumption in all other categories, can be interpreted as a measure of the success of public distribution of foodgrains in the urban areas. The subsidised public distribution was mainly responsible for the relatively slow growth in consumer prices for the low income consumers in the urban areas, and this slow growth could help

them to maintain their consumption levels at the earlier levels".

George (1983, 1984 and 1985) also examined the impact of GI on the foodgrains markets at the all-India level and on the ration systems of Kerala and Gujarat. Based on secondary data, from 1950 to 1978, a number of food and PDS aspects were examined. The co-existence of a declining per capita cereal consumption, along with an increasing foodgrains production and the maintenance of the net per capita availability of foodgrains, well over 400 grammes per day, was the most disturbing development observed in the food economy.

Analysis of the PP for the country as a whole, for the period 1963-64 to 1978-79, showed an increasing trend and the dominance of wheat and rice. Regression analysis indicated that a larger proportion of the variations in wheat PP was explained by wheat production levels, in comparison to the relationship between rice PP and rice production. Further, the elasticity of internal PP, with respect to production level, was much higher for wheat than for rice. In general, the relationship between the volume of PP and the contributions to the Central Pool was found to be positive. The PP data across States showed large variations in both the volume of PP and the methods of PP. The most important among the methods of PP practised were: support price operations; levy on millers and/or traders; graded statutory levy on producers; open market purchases by public agencies; monopoly procurement through millers and/or traders. The relationship between the various methods of PP and food

zoning or the movement restrictions and the relative merits and demerits of single-State zones were also examined. (The issues arising out of the trends in the PP-prices over time and across States, issues of adequacy and inadequacy of the PP-prices, the appropriate criteria for the fixation of the PP-prices and their relationship and impact on the OM-prices, consumer subsidies and their implications etc, (price issues within the framework of dual price policy), will be discussed in Paper III, (details on page 3), in greater detail).

Again based on the secondary data, (from 1955 to 1979), the significant aspects of the PDS at the all-India level were analysed. Strong seasonal and regional variations were found in the population-coverage, the number of households covered by each FPS, the total PDS-offtake, the composition of commodities distributed etc. While Kerala, West Bengal and Maharashtra were heavily dependent on the PDS-supplies in maintaining the per capita availability of foodgrains, the States of Assam, Haryana, Punjab and Rajasthan showed very low dependence. The relationship between prices (the PP-prices and the OM-prices) and the levels of PDS offtake revealed that while wheat offtake was more influenced by the availability factors rather than demand variables, the rice offtake was influenced more by the price differtial factors and the price of wheat rather than the issue-price of rice itself.

In the overall conclusion on the assessment of the PDS at the all-India level, George showed more balancedness and positiveness than those of Raj Krishna, Gulati and Krishnan, Amte, Bhagabat Mishra and a host of others who argued elaborately

to show the complete failure of the PDS objectives, both at the national and at the State-levels. George observed: "Though these observations should not be used to interpret that the public distribution systems in India have failed to achieve the objectives, it can be definitely concluded that the three objectives of achieving stability in availability and in prices, and equity in distribution of available foodgrains were only partially fulfilled". (George 1983).

In his later studies, George (1983, 1984, 1985) compared the major results and conclusions of his earlier study on the PDS in Kerala with the PDSs of several other States. In these studies, George examined the PDSs of Kerala, Gujarat, Punjab, Tamil Nadu and West Bengal, and brought to focus a number of prominent similarities and glaring deficiencies. (In view of time and space constraints, we do not go into the comparative aspects of different States). However, the conclusions, from the PDSs of different States, bore a common indication, viz., the positive contribution of the ration systems. The positive contributions were observed in terms of: (a) increasing the cereal consumption (physical form); (b) increasing the nutritional levels (energy form); and (c) effecting income transfers either from the rich to the poor or from the Government to the consumer households (income form). Thus, from the studies of George, it becomes clear that, both at the all-India level and at the levels of the States, the PDS has positively contributed to the reduction of food problem through greater protection of the EVS.

Shubh Kumar (1979) also studied the impact of the PDS on the

levels of food consumption and nutrition of the EVS in Kerala. By examining mainly the nutritional benefits, the study specifically brought out the welfare implications of the scheme. The PDS assumes special significance because of its potential for increasing the real incomes and per capita food consumption levels, especially of the EVS. It also simultaneously increases the aggregate demand for food. Increasing the real incomes should be considered as a significant economic (welfare) measure because it is the constraints of inadequate purchaisng power that limits the level of food consumption, more particularly in the case of the EVS. Inadequate food consumption often leads to a number of nutritional and health problems which have direct economic implications.

Through stratified random sampling method, 120 households were selected in the Trivandrum district of Kerala and a baseline survey was conducted. For intensive survey, only 43 households were selected which represented the bottom 50 to 60 per cent of income levels. These households also had children of weaning age - 6 to 36 months. For 6 months in 1974, a continuous record of incomes and employment of all the household members was prepared. Detailed data relating to a number of relevant aspects were collected into the 6-monthly records and analysed carefully.

The relationship between food consumption levels and the levels of ration rice distribution revealed that ration rice contributed about 34 per cent of calories and 33 per cent of proteins in the diet. Tapioca, being a rice substitute in Kerala, contributed 41 per cent and 13 per cent, respectively.

Ration rice accounted for 60 per cent of the total rice consumpotion of the EVS; for the entire State, it was 33 per cent only. In absolute terms, the sampled households obtained an average of 99 grammes, per capita per day, of ration rice over the 6 months of survey; (for the same period, the State average was only 92 grammes, per day per capita). The study also found a positive relationship between the seasonal distribution of food expenditure and the movements in agricultural employment and incomes.

The single anthropometric measure that best reflects the overall growth and nutritional status is the ratio of actual to expected "weight for age". The analysis of nutritional status of children of weaning age-group showed that nearly 70 per cent of them attained better height and weight, compared to the mean of Indian children of that age-group. During the survey period, each child was examined twice - once at the beginning of the survey and again at the end. The effect on the child's nutritional status was observed to be due to improvements in the calorie and protein levels as well as the improvements in the protein per calorie ratios in the household diets. Since ration rice consumption contributed about one-third of both calories and proteins for all the household members, the study concluded that children also got the "extended beneficial effect" of ration rice.

The positive correlation observed between ration rice purchase and income level remains consistent with the consumption

behaviour of the EVS and also remains consistent with the large price differtial between the subsidised price and the OM-price of rice. This is the result of a high income elasticity of demand at low income levels. Such an association implies that those with somewhat higher incomes have more favourable conditions for obtaining their share or more than their share of ration units whereas the EVS may not have access even to their legitimate full share. In fact, the study found evidence of the EVS mortgaging their ration cards with the HIH. Such leakages to the non-target groups dilute the distributive potential of the PDS.

Improvements in nutritional measures (calorie and protein levels) through increments in ration rice subsidy were found to be 6 to 10 times more effective than the direct increments to the total money incomes. Calculations revealed that at constant total incomes, one unit of ration subsidy led to 17.5 per cent of net calorie increment for the entire region. It went up to 35 per cent, if sub-regions were considered. In physical terms, for every unit of ration rice consumed by the sampled households, total rice consumption increased by about 20 per cent. Thus, the study conclusively showed the beneficial and positive contribution of the ration system at the State-level, intra-regional level and at the household-level.

The study by Shubh Kumar, however, has several limitations. It suffers from the limited coverage of geographical area, sample size, food consumption patterns, selection of subsidised commodity, consideration of alternative ways of providing subsidies etc. Such limited coverages place severe limitations

on the generalisibility of the results to the larger populations. But, the small-sample studies have some advantages too. More accurate measurements and fuller understanding of the limited variables lead to greater sensitivity, not only in the interpretation of results but also in the formulation of hypotheses to be tested for larger populations.

As indicated under Dholakia and Khurana, (1979) (in Section II) the study by Singh (1973) has been taken up here for detailed reviewing. Singh evaluated the working of the FPS in Uttar Pradesh. Keeping the twin objectives of welfare and stability under active consideration, Singh examined the question whether the short-term consumption objectives and partial control on the foodgrain market could provide permanent relief to the EVS. This question was raised because of the continuing disequilibrium between supply and demand, and, in spite of the increased food production.

The trends in prices and the cost of living were analysed on the basis of historical and contemporary secondary data. A field survey was also conducted through two separate schedules (one for licence-holders of the FPS and the other for the ration card-holders) from September 1968 to April 1969. The questionnaires were pretested and modified in light of the pilot-study. A two-stage stratified random sampling technique was adopted. The total FPS in Lucknow City were stratified into 3 groups - large, medium and small - based on their average fortnightly turnovers. An optimum 10 per cent sample was drawn from each of these 3

strata through a scheme of random sample selection without replacement, using a two-digit table of random numbers. Thus, a sample of 20 FPS was obtained out of a population of 203 shops. At the second stage, all the ration cardholders attached to the 20 FPS constituted the universe. Further stratification of the universe, on the basis of income variable, could not be done due to non-availability of income data from the FPS registers. A random selection technique was again applied to obtain 10 per cent sample of (1205) ration cardholders.

The question of viability of FPS was also examined in detail. It was felt that the optimum size should be determined on the basis of business turnover. At 1968-69 issue-prices, an FPS with a turnover of Rs.15000 to Rs.18000 per month was considered to be having the optimum size. Nearly 90 per cent of the ration-card families had a total income of Rs.300 per month which was considered very low level of income during 1968-69, especially in an urban area. About one-third of the sample households did not purchase any wheat and/or rice or purchased very small quantities. Even in the case of the other two-thirds of households, the quality of wheat was a major determinant of wheat offtake from the FPS.

Only about 52 per cent of cardholders expressed satisfaction with the working of the FPS; and those dissatisfied with the FPS complained of: (a) delay in sales and service; (b) irregular and inconvenient working hours; (c) adulteration of commodities; (d) distant location from their residences; (e) frequent non-availability of commodities and (f) illegible entries made in the

ration cards. The number of cardholders taking steps to redress their grievances was observed to be very low. Cardholders gave these reasons for their inaction; (a) fear of official vindictiveness and (b) helplessness on account of their illiteracy and ignorance. Even the legal and institutional provisions for getting their grievances redressed were not taken advantage of. This issue of consumers' right to economic welfare through State service, even in the nineties, remains a neglected aspect. This neglect has led to harassment, misbehaviour, ill-treatment, corruption and so on. The study by Singh underlined the need for systematically investigating the factors contributing to the lethargy and inaction on the part of the PDS-consumers even when they are subjected to harassment, ill-treatment, injustice and corrupt practices.

The consumers themselves were requested to identify various indices of inefficiency in the PDS. In spite of problems and difficulties, over 70 per cent among the cardholders wanted the FPS to continue. Diversion of supplies or black sales was given as the important problem which led to a number of other corrupt practices. Hence, the consumers suggested a system of rewards and punishments to the FPS-dealers. In short, most of the cardholders were in favour of the PDS becoming a permanent welfare mechanism along with the market mechanism.

Amte (1980), in his thesis-turned monograph, examined the PDS of the agriculturally predominant but persistently food-deficit State of Maharashtra. The central hypothesis ran thus:

"State-trading in foodgrains in Maharashtra State failed in attaining its declared goal". The study was based on the analyses of both secondary and primary data and covered the period from 1964-65 to 1974-75 for the two cereals of jowar and paddy/rice.

The quantum and the determinants of demand for foodgrains, nutritional status, population trends and trends in the income levels in the State were analysed. Taking 2250 calories as the minimum requirement, per capita per day, the gaps between the requirement level and that of the actual consumption during 1963-64 were estimated both for the urban and rural population separately. Amte found clear gaps between the required and the actual consumption which started increasing over the years, mainly due to population growth, growth in State income and the State per capita income levels and the declining cereal production.

Amte reviewed the significant developments in the food economy of Maharashtra carefully. But, serious analyses of data began only from 1965-66 when the Monopoly Purchase-cum-Procurement Scheme was introduced. The scheme was described as a revolutionary step and resembled a march on the road to socialisation of trade. The SG appointed the Maharashtra State Cooperative Marketing Federation as the chief purchasing agent which in turn appointed the local cooperative societies as its sub-agents. The scheme had the long-term objective of procuring the entire marketed surplus; but only during 1966-67, the 15 per cent record mark was achieved.

Field data were collected from 144 leviable cultivators from the Sangli district during 1973-74. A marked tendency to avoid levy payments, especially by the medium and big farmers was observed. In the voluntary sales of jowar and paddy, the proportion of sales by the small farmers (who were exempted from levy) was found to be significant. Both the PP-prices and the PP methods did not provide the farmers the sufficient inducement to greater production of cereals. With a view to providing price incentive to the farmers, during a period of declining cereal production, the SG decided to discontinue the monopoly status in 1973-74 and introduced two kinds of purchases: (a) compulsory levy purchase at the PP-price; and (b) the open market direct purchase at the OM-price. Based on the findings of higher price differentials, greater degree of levy evasion, declining cereal production, and the unremunerative PP-price offered by the SG, Amte concluded that the objective of providing inducement to greater production by the farmers was not fulfilled in Maharashtra.

The shortfalls in the PP resulted in major deficiencies in the PDS because of which it could not guarantee the supply of a specific quantity. A strong urban bias in the PD was observed; for example, Bombay City alone claimed 25 to 45 per cent of the total PD in Maharashtra. Further, the Bombay, Pune and Nagpur consumers were shown quantity as well as quality preferential treatment in the PD. They were not only distributed superior quality grains but also more adequately per card - almost close to the per capita requirement norm. By contrast, the remaining

districts were distributed mostly coarse grains and often far less than the requirement level, per capita.

Amte severely criticised the official documents for not clearly defining the fair (selling) price. He defined the `fair price' as the one in which the price-spread between the acquisition price and distribution (sales) price is the least, i.e. lower than the price-spread of any other trading agency. The study found the price-spread between the wholesaler's price and the retailer's price under State agency far higher than that of the private-trade. It was also demonstrated that the price-spread was higher in the case of coarse grains like jowar in comparison to the superior grains like rice. This, when viewed along with the conclusion on the pattern of distribution, only implied that the burden of Government operations fell more on the poor in the rural districts than on the better-off consumers in the urban areas. As the price-spread of the State agency remained at higher level than the others in the field, it was concluded that the objective of supplying foodgrains at "fair price" was not fulfilled in Maharashtra.

The State agency's price-spread was also compared with the price-spread of the cooperative agency. For this purpose, the relevant data of 3 cooperatives were examined as case studies. The results of detailed analyses revealed that while the cooperatives operated at price margins between 2 and 8.5 per cent, the State agency operated at over 10 per cent profit margins. The study, therefore, concluded that the cooperatives

were consistently more price-efficient in sales and distribution than the State agency. The wholesale price indices of wheat and bajra for 3 sample years each (based on monthly averages of prices) were also analysed. Results indicated that the State-trading operations in wheat and bajra could not stabilise the OM-prices in Maharashtra. The analyses of data on profit and loss accounts and foodgrain losses of the State agency in Maharashtra also gave deplorable results.

The crucial role played by the FPS as retail-distribution agents to the consumers was also recognised. The growth, administrative arrangements, organisation pattern, efficiency of operations, population coverage, viable size of the FPS etc were analysed in detail.

Amte identified three major determinants of FPS efficiency: (1) total extent of population coverage; (2) total quantum of commodities distributed; and (3) total net annual profits or earnings. He found 100 per cent population coverage only in Bombay, Pune, Solapur and Nagpur cities; the districts showed wide variations ranging from 32 to 99 per cent. However, the statements of population coverage became highly misleading as the registration of bogas cards, the statements of inflated units of ration requirements and the non-inclusion of cultivator-households etc distorted the official claims.

The study also worked out the norm for a workable and viable FPS which required the servicing of 600 familycards per week, (3000 persons) and a total earnings of Rs.700 to Rs.1000 per

month. Again, case study method was resorted to ascertain the extent of viable FPS in Maharashtra. Amte examined 23 FPS of Kolhapur city and found only 39 per cent of them economically viable. (61 percent uneconomic units). It was concluded that these proportions would be more or less the same for the State also. Qualitative information was also collected by using the structured questionnaires and through personal interview method from three categories of respondents: FPS-dealers, consumers and the Government officials. (Since we have discussed, in detail, this kind of "common-to-all-States" perceptions and opinions, we prefer not to go over them again with specific reference to Maharashtra).

The failure of the PDS was established not only on the basis of secondary data but also through a field survey conducted during 1973-74. Five places of investigation were selected through the purposive sample method and were mainly from the jowar-growing areas. Cultivators, consumers, the FPS-dealers and Government officials constituted the sample units. (Two separate questionnaires were used for cultivators (1000) and the FPS-dealers; but no structured questionnaires were used for consumers and the Government officials). Quantitative and qualitative data from the 4 sources were collected and analysed.

The most significant findings that emerged from the detailed analyses of the field survey data were: (1) the system of levy assessment with only area under crop and land revenue as bases was a highly faulty procedure; (2) malpractices in the fixation of levy demand; (3) highly irrational attitude of the Government

officials; (4) unreasonable price differences between the PP-prices and the OM-prices; (5) high degree departmentalisation of trading and business activities; (6) lack of proper propaganda and information-sharing; and (7) general indifference of the Government officials. The repulsive character rather than the contributory character of the Government officials was the main cause of failure of State-trading in Maharashtra.

The study also proposed an alternative model to reform the existing scheme thoroughly. Among the possible options, the middle course of partial State trading, operated through the cooperatives was considered as the best policy option for translating the objectives of food policy into reality.

Amte had discussed all the operational aspects of the model scheme in detail. The most significant features were: (1) the dominant role of the cooperative societies; (2) the two-market system consisting of cooperative trade and private trade; (3) land revenue payment as the basis of levy rates; (4) the actual yield (and not the area under crop) as the basis of levy assessment; (The levy assessment would be based on the principle of ability-to-pay with built-in progressive rates); and (5) the importance of functional aspects of the cooperatives; (such as capital, administration, purchase procedure, trading in the EC, estimation of foodgrains needs, discriminatory pricing policy, storage, sales or distribution policy, accounts-keeping, elections to societies and organisational arrangements upto the State-level).

The study by Amte has several merits to its credit. It is a comprehensive study; it brings to light the problems and issues of one of the food-deficit States in the country. It analyses the food problems of a millet region where coarse grains like jowar and bajra are dominant both in consumption and in production. It also shows the effectiveness or otherwise of the PDS in one of the biggest metropolitan cities, namely, Bombay. (The urban population, as the non-producing category, has been highly dependent on market purchases. Analysis of the PDS functioning in such urban areas gives a real measure of success of the PDS). The study rightly recognises the significance of people's participation for the success of any public programme and policy. (By assigning a vital role to the cooperatives in his model scheme, Amte proposes to involve all the households of the local community).

The study, however, suffers from several shortcomings and limitations. Only a few criticisms are indicated below. The study begins with the central hypothesis: "State-trading in foodgrains in Maharshtra State failed in attaining its declared goal". Hence, the very evaluation approach has been very negative. The study only brings out the failures and lapses of implementation; it makes no attempt to study the beneficial effects of the PDS. Further, the study pays greater attention to procurement and purchase issues (supply-side); the consumption and distribution issues (demand side) are neglected. This is especially true of the very weak field data base of the study. The study found a large number of FPS economically unviable. It

also reported that there was a four-fold increase in the number of FPS. This contradiction was left unresolved until the end. (If the FPS were really unprofitable, many dealers would not have come forward to start the new FPS).

While analysing price stability, Amte chose the prices of wheat and bajra and concluded that the price stability objective was not at all achieved. But, the State agency was mainly distributing jowar and paddy/rice. Instead of taking wheat and bajra, the prices of jowar and paddy/rice should have been analysed. It was not explained anywhere as to why this had happened. Statements of population coverage also create problems. When the leviable cultivators were denied the supplies through the FPS, how could the population coverage be 100 per cent. Further, as already discussed elsewhere, excluding the cultivator households from the purview of the PDS, will be highly unrealistic and irrational because not all households would be self-sufficient in foodgrains production.

Amte mixes up the failure of State administration with the failure of PDS. Throughout the study, only the administrative lapses and bureaucratic failures were analysed and proved. By this mixing-up, Amte seems to imply that the PDS has no beneficial effects to bestow on the consumers. Failure of administration is not the same as the failure of the PDS. Finally, in his model scheme, Amte envisages an extensive co-operative set-up with a large-size bureaucracy. After proving the failure of one bureaucracy, he suggests replacement with

another one viz., co-operative bureaucracy. One is not sure whether the general problems of bureaucracy could be overcome by the replacement of another bureaucracy. Further, the recent experience suggests that cooperatives have become vehicles of political domination and hotbeds of corruption.

Among the several available studies by different scholars on the PDS in Tamil Nadu, only the studies by Prabha (1982, 1983a, 1983b, 1984) are included for detailed reviewing. (As indicated at the beginning of the paper, we shall pay greater attention on the PDS in Tamil Nadu. This means more detailed review of the PDS issues of Tamil Nadu). The studies of Prabha collectively represent a well-organised, analytical and pioneering set of studies. (These studies originally formed part of doctoral research). In examining the agricultural setting, the importance of and the trends in rainfall, irrigation, land utilisation, cropping patterns etc were analysed. Published data from different sources (Governmental and non-Governmental sources) for the period 1950-51 to 1978-79 were used for this purpose. With specific reference to different size-classes of farmers, the magnitudes, trends and the significance of the HYVs, fertilisers, mechanisation and the "pumpset revolution" of Tamil Nadu were also examined.

Some of the interesting and significant results that emerged from these basic agrarian aspects were: (a) predominance of foodgrains in the State's economy; (b) declining growth rates of foodgrains over the decades; (c) movement out of coarse grains

and movement into food crops, especially paddy; (d) heavy concentration of land and other assets among the richer households; (e) rapid increase of agricultural labour population (numerically the most important poverty-group in the State); (f) even across districts, the paddy crop had not shown any significant change, either in terms of area or production or productivity; and (g) in the entire spectrum of development activities, State policy played a significant role (especially, different kinds of State subsidies).

Next to the agricultural setting, the aspects of inequalities in food consumption and the incidence and magnitudes of poverty in Tamil Nadu were examined. Prabha compared her findings for Tamil Nadu with those of the results of a major study carried out by the Centre for Development Studies (1975) which analysed the wide inter-state variations in the per capita calorie intake in the country through the NSS consumption data. (Kurien (1976) provides a critical assessment of the CDS study). The results of the analyses of nutritional inequalities and poverty levels bring out the major weaknesses found in Tamil Nadu which forcefully demand the more efficient functioning of the PDS in the State. Only some of the most important results are touched upon here.

In 1961-62, the national average calorie intake was 2445, per capita per day, which declined to 2179 calories in 1971-72. The average calorie intake of Tamil Nadu, however, stood at 2090, per capita per day, well below the national average. Cereals and cereal substitutes together contributed to over 70 per cent of

the average calorie intake in all the States. The average calorie was found to be higher in rural areas than in urban areas in all the States. In 1973-74, the average calorie intake, per capita per day, increased to 2263 but, even that was nearly 7.5 per cent lower than the national average of 2445 reached in the year 1961-62. The analysis of the relationship between average calorie intake and the per capita production of foodgrains showed a clear positive result in all the States. But the relationship between average calorie intake and per capita income showed very mixed patterns. Based on the inter-State comparisons, the study concluded that calorie intake is unlikely to be determined by the levels of income alone. The large inter-State variations in per capita calorie intake only reflected the differences in the per capita availability of cereals and cereal substitutes. Differences in the per capita calorie intake between the rural and urban areas also persisted largely due to the per capita availability conditions.

Inequalities in food consumption among the different sections of Tamil Nadu were analysed by using the NSS data relating to 1961-62. The most significant results, in brief, were: (i) the average calorie intake, during 1961-62, in Tamil Nadu was 1962, per capita per day, which was much lower than the all-India average of 2445 calories; (ii) rice alone contributed 66 per cent of the average calorie in Tamil Nadu (all cereals together accounted for as high as 87 per cent); (iii) for the country as a whole, cereals constituted only around 67 per cent of the total calories; (iv) the average per capita supply of

proteins in Tamil Nadu was 43 grammes per day which was lower than the national average of about 59 grammes per day; (v) the rural-urban variations in food intake within Tamil Nadu were also found to be large; (vi) as far as rice consumption was concerned, on the basis of average per capita consumption, the differences between the rural and urban areas were not much. But, in the average total calorie intake, rural areas showed higher levels than the urban areas, largely due to a high level of consumption of 'other cereals' such as jowar, bajra and ragi in the rural areas; (vii) 'other cereals and millets' contributed only 31 grammes, per capita per day, in urban areas whereas they contributed 148 grammes in rural areas; and (viii) cereals constituted 85 per cent of the total calories in rural areas, but only 75 per cent in urban areas. The study by Prabha had also analysed the data from the Operations Research Group Survey (ORG Survey) of 1971. The Survey had estimated the calorie intakes of various categories of the population in Tamil Nadu. Even the Survey's estimate of 2001 calories, per capita per day, during 1970-71, was much lower than the ICMR-recommended (standard) average calorie intake of 2400, per capita per day. The Survey also revealed that cereals contributed 76 per cent of the total calorie intake; of which rice alone accounted for 52 per cent.

The analysis of consumption data of the 17th Round of the NSS (1961-62) brought out the high degree of inequality in the distribution of food intake among the different expenditure classes in Tamil Nadu. For example, in the rural areas, while the bottom decile group consumed only 4.67 per cent of the total

food intake of all the groups, the top decile group consumed as much as 16.35 per cent. The corresponding percentages for the urban decile groups were 5.82 and 14.21. Further, while the average calorie, per capita per day, among the rural decile groups ranged from 1035 to 3624, it ranged from 1148 to 2803 in the urban areas in Tamil Nadu.

Using the data available from the Reports of the Tamil Nadu Nutrition Study (1970-71), the Operations Research Group Survey (1971) and the NSS Rounds, the disparities and variations in food intake across the districts of Tamil Nadu were also analysed. The district-level analyses relating to per capita production and per capita calorie and per capita income and per capita calorie yielded results similar to the results obtained earlier at the State-levels.

On the basis of the NSS data, and by following the minimum calorie norm of 2250, per capita per day, the study by Prabha found that nearly 48 per cent of the rural population and 85 per cent of the urban population in Tamil Nadu had not obtained even the minimum level of per capita calorie through food consumption. Further, the study also found that even in 1973-74, (according to the data of 24th Round of the NSS), nearly 55 per cent of the households had not obtained the minimum calorie level of 2200, per capita per day. In simpler words, these households could not spend even 75 paise, per capita per day, on food intake which would have enabled them to cross the cut-off level calorie intake.

Another significant area examined by Prabha related to the impact of PP-operations on the farm incomes of levy farmers. (Since the procedures of analyses and findings of Prabha on these aspects are very similar to Subbarao (1979) (which we have already discussed in detail) we would not go into them again). Of course, there are differences between Subbarao and Prabha. But they arise only from data-base, period of analysis and geographical area of empirical investigation. (Prabha collected her field data from the State monopoly procurement area of Thanjavur district). After the detailed statistical analyses, Prabha found that the weighted average price received by the sample farmers was higher than the estimated OM-price that would have prevailed in the absence of compulsory levy. The study, therefore, concluded that farmers do get fully compensated for the lower PP-price by the increase in the OM-price on account of withdrawal of supply from the free market.

Levy data from 108 farmers, selected from two villages situated in Thanjavur district, were collected. The 108 farmers were grouped into 6 size-classes and the data relating to levy payment, levy evasion, the levy realisable etc. were collected and analysed. The results of detailed analyses showed that levy imposition and the consequent increase in the OM-price benefited the small farmers proportionately more than the large farmers. Thus, the graded levy system has been found to contribute considerably to the redistribution of income in favour of the small farmers. On the basis of the COP data for paddy, from the Tamil Nadu Agricultural University, Prabha examined the question

whether the levy system meant a disincentive to the farmers. After detailed analyses, the study concluded that not only the OM-price but even the weighted average price covered the COP of paddy during 1976-77. For the same year, the PP-price also covered the COP of paddy in Tamil Nadu.

Prabha had also discussed several drawbacks of the graded producer levy scheme as operationalised in Tamil Nadu during the 1975 Samba season. (Since the drawbacks analysed by Prabha are very similar to the ones discussed by Subbarao (1978, 1979), Gulati and Krishnan (1975), Vincent Panikulangara (1976) and others, they are not discussed, once more here).

Of all the issues examined by Prabha, those relating to the evaluation of the PDS in Tamil Nadu are the most important, both in terms of focus and elaborateness of treatment. (Since the approaches, procedures and the results of analyses of Prabha in dealing with these issues are very much similar to those of Subbarao (1978), George (1979), Raj Krishna (1967), (all of them, we have reviewed already in detail), we would not go into them again. However, the results of the analyses are indicated). The relationships between the PP-quantum and production of rice and prices were analysed through regression equations. Results showed that : (a) the PP quantum of rice was positively correlated to: (i) output levels; (ii) the producer levy method and (iii) the operation of inter-district movement restrictions; and (b) the volume of PP was inversely related to the price differential between the OM-price and the PP-price.

In the analysis of determinants of ration offtake in Tamil Nadu, Prabha paid special attention to rice and wheat offtake during 1965-66 to 1978-79. Wheat offtake normally worked out to around 10 per cent of the total cereal offtake. But, it ranged from 4.6 per cent in 1972-73 to 34 per cent during 1974-75, and further to 43 per cent in 1975-76. The exceptional levels of wheat offtake during 1974-75 and 1975-76 were more due to severe drought conditions in the State. In the case of rice offtake, a regression equation was specified for estimating the explanatory powers of the demand variables (price, income, taste and preference). The month-wise date on rice offtake, the OM-prices, the ration rice prices etc., for the period 1970 to 1977, were used in the regression analysis. The results showed that only 12 per cent of the variations in ration offtake of rice was explained by the price variable. Owing to the poor explanatory power of the demand variables, the study concluded that supply variables (production levels, marketed surplus, the quantum of PP, methods of PP) probably exerted greater influence on the rice offtake of the PDS in Tamil Nadu.

The study also examined the extent of benefits accruing to the consumer households. Since the macro-level secondary data could not provide the required information, Prabha conducted an household survey during May-June 1982. Two villages, one each from Thanjavur and Madurai districts, were selected and from each village, 60 households were randomly selected. Quantitative as well as qualitative data were collected through the personal-interview method by using a structured questionnaire. Since

there was no rice purchase in both the selected villages during the week-long household survey of 1982, the data relating to rice purchases during 1980 and 1981 were collected from the bill-books of the ration shops and analysed.

Based on the household survey data, Prabha presented detailed results for each district-village separately. The following were the most striking similarities and contrasts pertaining to both the villages. Clear differences were observed in the purchase patterns of ration rice between1980 and 1981. Compared to 1980, both the total quantum and the number of households purchasing rice from the FPS had increased during 1981. Since 1981 was a year of drought in Tamil Nadu, rice output declined considerably which resulted in the sharp increase of the OM-prices of rice. Even in the rice-surplus district of Thanjavur, these developments happened. Another common pattern observed in both the districts related to the greater quantum of rice purchases during the lean months of July, August and September when OM-price and PP-price differences were at the maximum. In the post-harvest months, the ration purchases of rice were observed to be at the minimum.

The extent of dependence and the sources of purchases of rice of the sampled households were also analysed with reference to land-holdings and annual incomes of the households. The three sources of rice purchases were: the FPS; the open markets and the home-grown production. In the total rice consumption of Thanjavur-village households, the FPS-purchases accounted for

just 2.7 per cent; the open market purchases contributed 19.9 per cent and the share of home-grown production came to 77.4 per cent (averages for the 60 households). The corresponding figures for the Madurai-village households were 2.3 per cent, 36.7 per cent and 61 per cent, respectively, (averages for the 60 households). In general, the consumption of rice increased as the size of land-holding increased.

On the basis of estimated annual incomes, the sampled households were divided into 6 categories and their sources of rice consumption were also analysed. Results showed that the share of FPS rice purchase had never exceeded 5 per cent of the total consumption even in the case of lower income groups. In both the districts, the dependence on ration rice decreased as the income of the households increased. The analysis of the proportions of expenditure on rice in the total food expenditure, across income groups, revealed that the proportion decreased as the income of the household increased, which indicated the operation of Engels' Law. It was observed that the HIH never purchased the FPS rice. Further, the study found many malpractices at the operational level in the PDS of Tamil Nadu. (Since we have already discussed the malpractices issues under different studies, we prefer not to repeat them again).

An overall evaluation of the achievements of Government operations in rice in Tamil Nadu was also carried out by Prabha (1983) for the 14-year period of 1965-66 to 1978-79. Since the approaches, procedures and results obtained by Prabha are very similar to those of Raj Krishna (1967) at the all-India level,

only extremely brief comments would be made on Prabha's evaluation.

The analysis of trends in the per capita availability of rice in Tamil Nadu showed a linear (upward) movement. However, the availability had fluctuated considerably around the mean of 275.5 grammes per day. Frequent fluctuations could hardly ensure the stabilisation of per capita consumption-(an objective of the PDS). The anlaysis of ratios of Government purchases of rice to State output levels also showed sharp fluctuations.

Like Raj Krishna, Prabha also constructed two feasible alternative models with the primary objective of providing a given level of per capita consumption through the PDS. Based on the results, Prabha, like Raj Krishna (1967), concluded that Government operations in rice were irrationally managed.

The studies by Prabha strongly recommended the target group approach. It was estimated that only 202 lakh persons in Tamil Nadu deserved price relief through the PDS, out of a total population of 412 lakhs in 1971. The target group, therefore, worked out to 49 per cent of the total population. Finally, the study concluded that in future the Government machinery must remain geared to distribute about 20 lakh tonnes of rice in Tamil Nadu every year.

The studies of Prabha contain a number of commendable and analytical aspects. They are well-organised, well-argued and critical. They are also based on sound primary and secondary

data. The collected data are also analysed and presented at three levels: (i) at the State-level; (ii) at the district-level; and (iii) at the household-level. However, the studies of Prabha are not completely free from shortcomings and limitations. In view of the time and space constraints, we would only mention a few major limitations. The most striking shortcoming is the stereotyped duplication of approaches, procedures and methodologies of the leading studies in the field. We had already indicated this problem at different places. Prabha most closely duplicated the works of Raj Krishna (1967), Gulati and Krishnan (1975), Subbarao (1978,1979), George (1979, 1980) and others. Prabha chose a particular study as the model for analysing a particular aspect.

Another shortcoming noticed in the studies is the undue importance given to the analysis of the agricultural setting of the State. Since the agricultural setting forms the backdrop to the entire analysis, it certainly deserves to be discussed. But Prabha has overplayed this aspect and has used the work of Kurien (1981a) beyond the limits of justification.

Although Prabha attempted, in her studies, to give equal importance, to both the major components of PDS, (namely, PP-operations and PD-operations), analyses and results proved that the PD-operations gained greater attention. While the analysis of PP-aspects was more based on the secondary and recorded data, the analysis of PD-aspects was based both on the primary and secondary data.

The sample size and the duration of household survey adopted by Prabha also give rise to a set of methodological problems. Given the very large number of farm households and consumer households in the chosen districts, Prabha selected 108 farm households and 120 consumer households for field investigation. The conclusions drawn on the basis of such small samples often lead to the problem of not truly representing the population. Further, the household survey, in the two districts, was conducted only for a week. The analysis of 'consumption problems' or 'benefit assessment', based on the week-long data runs a high-degree risk of reliability of data. Results could have been influenced either because of supply forces or because of demand forces or both. During field investigation (May-June 1982), for example, Prabha found no purchase of ration rice by the consumer households. This might be either due to non-availability of rice in the FPS or due to absence of demand for rice, despite its availability. This forced Prabha to collect the recorded data from the bill-books of 1980 and 1981. (The validity of this procedure could also be questioned). In other words, the normality and the adequacy of time-period of the household survey need to be established and explained. But, this has not been done by Prabha.

In making use of the COP data of the Tamil Nadu Agricultural University study, Prabha has not critically examined the methodologies adopted by the study. The data and conclusions of the study were accepted as given and further conclusions were drawn on that basis. Even that data related to the year 1976-77,

whereas the field investigation was carried out during 1982. Between 1976 and 1982, the nature, direction and magnitudes of the COP data might have also changed considerably.

Although Prabha's study is stated to be on the PDS in Tamil Nadu, it has, in fact, become a study of rice procurement and rice distribution. Prabha mainly analyses the "rice issues" and excludes from the purview of analysis all other rationed commodities such as wheat, sugar, edible oil and kerosene. The PDS procures and distributes mainly these 5 commodities whereas the study concentrates only on rice. In this sense, Prabha's study is only a partial analysis of the PDS in Tamil Nadu.

Bhagabat Mishra (1985) examined the PDS in Orissa upto 1978 as a topic for doctoral research. It was primarily based on the secondary data, supplemented by field investigation in the Balasore district of Orissa - "the granary of the State". Multi-stage random sampling method was applied with income as the stratifying variable. Within the PDS, the study focussed on the distribution of rice and wheat only. The set of hypotheses with which the study started its evaluation of the PDS reflected its negative approach to the public welfare programme. It also reviewed the various experiments initiated in Orissa such as price control, rationing, procurement, food zonal system etc. Among the experiments, the graingola cooperative societies, (grain banks) presented a unique case of public intervention in grain management. They provided both production and consumption loans in kind, mostly paddy loans, to all the members of the societies. They functioned quite successfully from 1951-52 to

1966-67 but became defunct and were wound-up in 1971.

Mishra's study assumes significance because of its special focus on the buffer stock policy, role of the FCI and the impact of working of the price policy on both the consumers and the producers, all analysed at the State-level. While using the distinction of Shah (1969) between price-neutral buffer stock and quantity-neutral buffer stock, Mishra emphasised the importance of the latter for the poor under Indian conditions. The magnitudes of buffer stock, purchases, sales, timings, the appropriateness of the procurement agency and the problems of storage locations were analysed in detail. The FCI was found to be an ideal agency of procurement in Orissa; its various functions and the constraints were critically examined. The effects of the working of the dual price policy both on the producers and the consumers indicated some crucial failures in the price front by the PDS. The lower and inadequate offtake, limited population coverage (67.5 per cent) and the limited influence of the PP in reducing the OM-price of rice showed that the price policy was not fully beneficial to the consumers.

The procurement data were analysed from 1965-66 to 1976-77. The PP activities were found to be carried on a trial and error basis. The uncertain nature of the modes of procurement and the frequent changes of agencies of PP made the entire activities haphazard and the quantum of PP highly inadequate. The PP methods, especially the levy system, were found to be unsatisfactory and arbitrary, and in most cases inequitous in

their effects. Hence, the study strongly recommended the adoption of the graded producer levy scheme as proposed by the Gulati-Krishnan model (1975) in the State of Orissa. The PP-prices in Orissa were found to be lower than those prevailing in the neighbouring States which suggested that the producer prices for rice should be raised in order to make them remunerative to the farmers. The fixation of producer price should be based on all the criteria of price parity, cost of production, forward price etc. instead of cost of production alone. Thus, the study found the PP prices, in general, were not beneficial to the producers also. The study recognised the crucial significance of the relationship between the administrative machinery and the PDS for the efficient delivery of gains to the target groups. The analysis of the enforcement of various control orders and food laws in Orissa gave ample evidence that the administrative machinery lacked the required competence to run the PDS effectively, even for the EVS in the population.

In order to examine the PDS - at-work more closely, Mishra used the method of case study and collected primary data, both from the urban and rural consumer households. A two-stage random sampling with stratification adopted in the second stage was applied and 61 urban households were selected from Balasore. A three-stage random sampling with stratification adopted in the third stage was applied and 54 rural households were selected from two villages of the Baliapal block of the same district. Based on annual income, the rural and urban households were classified into four strata and their quantitative and

qualitative data on a number of aspects were analysed, income strata-wise.

The detailed analysis of field data revealed that the PDS in Orissa was out and out an urban phenomenon which failed to meet the entire rice requirements of the covered urban households. In the rural areas, it operated only for a few months in a year and met only a fringe of the rice requrements there. A large chunk of the urban and rural households depended on the open market purchases of rice. Wheat distribution was liberal in the urban areas but the offtake was very low. On the other hand, wheat distribution in the rural areas was absent, despite considerable demand for it. The system also failed to absorb the marketed surplus of the growers at support prices. As observed already, the price benefits accruing to consumers and producers were very limited. By and large, the PDS also failed to bring about reasonable price stability in the OM-price of rice. Thus, in many respects, the study of Mishra concluded that the failures and shortcomings of the PDS in Orissa overweighed the generated gains and benefits for the consumers.

As part of his doctoral research, Suryanarayana (1985) studied the PDS in the Visakhapatnam district of Andhra Pradesh on the basis of both secondary and primary data. Using the published data, the temporal trends of production, procurement and distribution of rice, wheat and sugar were analysed for the period 1961-62 to 1981-82. Growth rates of production, procurement and distribution of rice, wheat and sugar were also analysed across the 21 districts of Andhra Pradesh. With respect

to distribution aspect, growth rates of linear, exponential and compound types were calculated district-wise. The district-level trends were compared to the trends observed at the State-level. Rice production, for example, showed an increasing trend but its procurement varied from 4 to 16 per cent of production during the reference period. The PDS distribution of rice ranged from 0.26 to 10 per cent of production; the ratio of distribution to the procurement of rice ranged from 5 to 89 per cent. The district-level analysis presented a mixture of positive and negative relationships among them.

Growth rates in the per capita availability of foodgrains (and the consumption levels) were analysed for Andhra Pradesh and the country as a whole, which showed a declining trend over time. The consumption levels and their trends across different income groups were examined on the basis of primary data collected from Visakhapatnam district. For the selection of households, a two-stage stratified random sampling design was used. At the first stage, 24 FPS were selected at random from 7 towns, and in the second stage, 10 households were selected from each of the 24 FPS (totally 240 urban households). Based on population, the villages in the district were grouped into 4 categories; 20 villages from the 4 categories were selected; and from each FPS, 10 households were selected at random (totally 200 rural households). Finally, from 7 tribal villages, 70 households were sampled. Thus, a total of 510 households attached to 51 FPS constituted the sample size. Field data were collected during December 1981-January 1982.

The sampled households were classified into 10 income groups, separately for the urban, rural and tribal areas. For the 8 commodities, (rice, wheat, sugar, maida, suji, edible oil, kerosene and ragi), the consumption patterns and trends of each of the 10 decile groups were analysed. The field data were examined in the light of a well-established declining consumption of cereals in almost all the States. However, cereals constituted the major source of calorie intake among all the decile groups in the 3 sampled areas. Cereals accounted for about 80 per cent of the total calories derived from food. This percentage is comparable to the findings of several other earlier studies. In terms of physical quantities and money expenditures also, cereals claimed greater significance across decile groups in all the sampled areas.

The extent to which the PDS-offtake contributed to the consumption requirements of the sampled households was also examined. Suryanarayana fitted 8 functional forms in the estimation of Engels elasticities (relationship between food consumption expenditure and income of the households) for rice, wheat, sugar and edibile oil separately for each of the sampled areas. The results showed very low elasticities because only income was considered as the independent variable (instead of the usual total expenditure). For example, the income elasticity of rice was very low in all the areas and across all the income groups which implied that rice should be considered the most essential of the items of consumption and therefore should be provided upto the desired consumption requirement level. By

supplying a higher quantity and by granting a higher State subsidy on a commodity like rice, the net income benefits to the consumers would be maximised as it showed a near-perfect income inelasticity. The study identified the existing gaps between the PDS-supplies and the consumption requirements of the sampled households. This directly necessitiated the analysis of the sources of consumption and their relative shares. Home production, FPS purchases and the open market purchases were found to be the major sources. The 8 commodities considered were: rice, wheat, sugar, maida, suji, edible oil, kerosene and ragi, a non-PDS item. Results showed that, in general, the proportion of PDS-offtake declined as the income of the households increased. The negative association was observed more certainly in the urban areas. While the FPS purchases were found to be negligible in the rural areas, they were also not found to be substantial in the tribal areas. Across the decile groups, the study found that the lower and middle income groups benefited more from the PDS than the higher income groups.

The study also recognised the significance of estimating the consumption requirements of at least the target groups in order to protect them from the adverse effects of price-rise and food scarcities. It linked the ICMR norm of 135 kgs of foodgrains, per capita per year, uniformly for the urban and rural areas with the consumption requirements of the target groups as identified by the Raj Krishna model, (Model I) the Government of India model, (Model II) and the Rajapurohit model, (Model III). On this basis, the study projected the foodgrain requirements for

the State of Andhra Pradesh from 1983 to 1990. It prescribed that the projected requirements should be the minimum quantity of PDS-distribution in the State and Government should formulate the PP policy accordingly.

The impact of rationing on consumption and income was also analysed by estimating the extent of gains realised by the selected households because of their FPS-purchases. By keeping the FPS issue-prices as the reference prices, the open market higher prices were considered as "losses" incurred by the sampled households. These losses would have been greater, if the differences between the offtake prices and the open market prices were higher. In this analysis, only rice, sugar and edible oil were considered. The PDS-gains were expressed as a proportion to the total consumption expenses incurred on these 3 items. Results showed that the urban areas got the maximum benefit which ranged, across decile groups, from 31 to 41 per cent. In the rural and tribal areas, gains ranged from 15 to 20 per cent and from 8 to 19 per cent, respectively.

The consumer households in all the 3 areas were found to incur more losses by depending, to a larger extent, on the open market purchases. These losses would have been avoided, if the PDS had supplied these commodities to the full consumption requirement level. However, the more significant implied finding that emerged from the study was that the existence of PDS contributed gains to all the consumer households, though in varying proportions. Thus, the PDS-gains were found to be

distributed unequally in the different sampled areas and also among the different decile groups within a region. In the Visakhapatnam district, the study found that greater PDS-gains were enjoyed by the urbanites rather than by the ruralites.

Through the sampled households, the day-to-day working of the FPS was also examined, mostly from the point of view of the consumers. For the effective distribution, the FPS-population ratio should be as low as possible. Andhra Pradesh enjoyed a more favourable FPS-population ratio (1:1818) in comparison to the all-India ratio (1.2339) during 1983. (Since Suryanarayana's analysis of the qualitative information, collected from the consumers themselves (their perceptions, opinions, experiences, suggestions for improvement etc.) on various aspects and issues of the PDS was not significantly different from that of Ojha Ghanshyam Das (1987) for the same State of Andhra Pradesh, (which we shall review a little later), we do not discuss them here).

Radhakrishna and Indrakant (1987) examined the welfare effects of market intervention policies in India through the case study of rice market in Andhra Pradesh. Since poverty levels are directly influenced by the variations in foodgrains prices and production, formulation of a right foodgrain policy for the country has been a significantly overriding concern of the policy makers. The most important constraint in this effort is the reconciliation of the conflicting interests of various socio-economic groups and regions which resulted in the enormous amount of food and input subsidies.

As done in all studies, trends in foodgrains production and the PP quantities, (their ratios), trends in net availability and Government supplies, (their ratios) and the trends in the OM-prices and the PP-prices for the period 1950-52 to 1982-83 were analysed nationally. In all exercises, a distinction was drawn between foodgrains as a group and rice- the dominant cereal in Andhra Pradesh. Analysis of Government expenditures showed a phenomenal increase in food and fertiliser subsidies over the years. The total subsidies (all subsidies by the CG and the SGs) stood at Rs.140 crores in 1971-72 which sharply increased to Rs.4921 crores in 1985-86. For the corresponding period, the subsidies made for food and fertilisers alone amounted to Rs.470 crores and Rs.3700 crores. In 1971-72, the latter accounted for 33 per cent of the total subsidies; this proportion snow-balled to over 75 per cent in 1985-86. Further, variations in the COP between regions and between categories of farmers limited the use of cost as a guide to national policy-making. Analysis of carrying costs of buffer stocks by the FCI showed that the interest payment made for the borrowed capital constituted the single largest cost-component. Interest payment worked out to over 60 per cent of the carrying cost for every tonne of buffer stock held by the FCI.

In the rice economy of Andhra Pradesh, the authors found large scale exports by private traders, mostly to the four neighbouring States of Kerala, Tamil Nadu, Maharashtra and West Bengal. The OM-prices of rice in these States were much higher than those of Andhra Pradesh. Both the FCI and the Andhra Pradesh State Civil Supplies Corporation (APSCSC) participated i

the PP with a set of mutually agreed procurement arrangements. While the FCI procured at PP-price, the APSCSE procured rice at "negotiated price". The negotiated price was a little higher than the PP-price but very much lower than the OM-price. For example, the negotiated price fixed per tonne of rice in 1985-86 was Rs.2433 (common variety) whereas the PP-price was Rs.2353 per tonne (a difference of Rs.80 per tonne for the same quality rice).

Time series data on the quantity of rice, distributed by the SG, revealed that, even in 1978, it accounted for just 1.22 per cent of the total domestic consumption of rice but sharply increased to over 28 per cent in 1985-86. Since the introduction of "two-rupee-a-kilo rice scheme" in December 1982, rice distribution by the PDS increased enormously. On the basis of annual income, families were categorised into "Green card holders" (less than Rs.6000 per annum) and "Yellow card holders", (above Rs.6000 per annum). The new scheme provided 5 kg of rice, per capita per month, subject to a ceiling of 25 kgs per family per month, to all the Green card holders. The new scheme covered 70 per cent of the EVS in the State and the remaining 30 per cent of families was covered by the FPS. They charged the latter, for the same rice, Rs.2.70 per kg. Like the CG's rice subsidy to the FCI, the SG also started making rice subsidy to the APSCSE from 1982-83.

The most important aspect of Radhakrishna and Indrakant's study lies in its analysis of price and welfare consequences of policy interventions in Andhra Pradesh. Among the effects

generated by policy interventions, the effects on consumption-side and on the supply-side are generally considered most significant from the angle of development perspectives. This study focussed on the welfare effects of consumer households as brought out by the variations in consumption levels. The authors formulated a dual model for analysing the price formation in the rice market of Andhra Pradesh. The model was structured to handle policy effects on the welfare levels of consumers on the gross revenue accruing to rice producers and millers. The model adopted the following assumptions: prevalence of closed economy; levy procurement on millers; distribution of rice by the State at different ration prices; variations in per capita distribution across expenditure classes; attainment of normal profits by millers and price changes are passed on to producers. In the model specified, the aggregate demand for rice depends on : (a) the OM-price; (b) ration quantity distributed; and (c) the PDS issue-prices; the aggregate supply in the market depends on the weighted average of OM-price, the PP-price and the export price.

Taking 1985-86 as the reference year, the effects of policy changes on domestic rice production, OM-price, millers/producers' revenue, and welfare levels of different strata of consumers were estimated. Six policy changes (P1 to P6) were superimposed on the reference year scenario; of which, while P (1), P(2) and P(3) deviated moderately from the existing framework (1985-86 position) P(4), P(5) and P(6) deviated subsantially. The six policy changes, in nutshell, are:

P(1) : FCI procures 1 mt of rice without making any changes in other policies.

P(2) : FCI supplies an additional 1 mt of rice from its own stocks.

P(3) : FCI procures 1 mt of rice from Andhra Pradesh and distributes it through the PDS under the two-rupee-a-kilo scheme (this policy change comes closest to the 1985-86 real scenario)

P(4) : Both the PP and the PDS are withdrawn; introduction of inter-state trade liberalisation policy.

P(5) : Both the PP and PDS are withdrawn; imports from abroad are freely allowed without GI.

P(6) : Rice market functions under autarky; absolute state-monopoly power determines all functions.

Welfare levels were measured by changes in real expenditure in Rupees per person per annum. Households in both the rural and urban areas were categorised into poor, middle and rich households. Welfare changes (both positive and negative) were determined for the 6 categories in the light of estimated values. Results of the model showed that P(1) affected all categories negatively - (It is the least preferred option). P(2) improved the welfare levels of all categories; but the rural poor and middle categories benefited much less than others. The rural rich and the urban rich reaped the highest level of benefit. The P(2) effects were against the objective of income redistribution from the rich to the poor. P(3) improved the welfare levels of

all categories except the rural rich and the urban rich. This policy intervention involved the CG as well as SG subsidies and the rich were also made to incur costs for raising the welfare levels of the EVS. (The most preferable option). The trade liberalisation policy (P4) affected the welfare levels of all categories negatively. In addition, it also increased the producers' revenue (largely the revenue of the rich) and eliminated the CG and SG subsidies (This cannot be the desirable option). Both the P(5) and P(6) improved the welfare levels of all categoreis, because the rice market functioned under two extreme situations (complete free trade and absolute state monopoly power). At least, two serious problems cropped up under these policies: (a) the rural and urban rich gained more than proportionately in comparison to other categories; (b) they produced a highly depressing effect on rice output and producers' revenue. (Hence, they cannot be the preferable options).

The critical study by Radhakrishna and Indrakant is an illuminating attempt for a number of reasons. However, we highlight only a few of them. It represents one of the important analytical studies done in recent years. It rightly recognises and focusses on the effects of policy interventions in the rice economy of a major rice-producing State, the positive experiences of which could be useful to other States. The authors have handled skillfully the complex interactions of a rice market containing, 'a four-market, four-price system' instead of the usual treatement of "the two-market two-price system". The policy changes considered, (P(1) to P(6)), sufficiently

represented the variety of policies that can possibly be developed and implemented in the Indian context. The study also clearly brings out the differential impact of each and every policy change on the different categories of consumers. For instance, in the light of the estimated values and effects of P(3), it could be concluded that the actual functioning of the rice market in Andhra Pradesh, during 1985-86, maximised the overall welfare gains. This study also reminds us of the "stability models" developed by Raj Krishna (1967). While the objective function of Raj Krishna's models was stability in per capita consumption level, the Radhakrishna-Indrakant model kept welfare maximisation as the focus and objective function. (This clearly indicates the development of "great expectations" from public policy interventions).

Despite its superiority of approach to the analysis of policy intervention impact, we observe in the study a few limitations and shortcomings. For example, since Andhra Pradesh has been a rice-surplus State, the conclusions of the study might be true and generalisable upto the level of that State only. In the context of a number of food-deficit States in the country, the practical applicability of the model may only be very limited. The stringent assumptions of the specified model will not hold good when both surplus and deficit States exist side by side. In spite of the shortcomings of this nature, the study by Radhakrishna and Indrakant should be considered as an important contribution to the literature on the PDS in India. (In his latest contribution, Radhakrishna (1991) re-examined various

aspects of the political economy of grain market intervention in India).

For his doctoral research, Ojha Ghanshyam Das (1987) examined the organisation and management of the PDS in the Konda district of Andhra Pradesh. On 1st July, 1979 the National Production-Cum-Distribution Scheme (NPCDS) was launched on a massive scale with the objective of procuring and distributing 13 of the EC. Of the 13 EC, the distribution problems of only rice, wheat, sugar, palmolein oil and kerosene were studied, as the PDS covered only these in the Konda district. Among the 5 commodities, only paddy/rice was locally procured, the quantum of supply of all others depended on CG allotments done on a monthly basis.

Trends in the PP were examined from 1975-76 to 1980-81. The results regarding the problems such as low procurement quantum, storage and transit losses, transport problems, absence of coordination between the FCI officials and the officials of the State Civil Supplies Department etc. largely confirmed the findings of Subbarao (1978), discussed already in detail. However, the study made an important contribution in analysing the organisational set-up of the FCI at the district level. It explained, in detail, how the localised problems in Konda district made the procurement process almost dysfunctional.

The study also analysed the official organisation of the FCI and the State Civil Supplies Corporation and discussed in detail their weaknesses and problems. Based on a purposive random

sample of 8 co-operative FPS and 20 private FPS, the management problems at the retail level were analysed. A marked difference was found between the FPS managed by the private dealers and the cooperatives. Glaring differences were observed with regard to: (a) plinth area of the shops; (b) number of ration-cards serviced; (c) willingness for wider commodity coverage; (d) economic viability; and (e) behavioural dimensions. (Under Dholakia and Khurana (1979), we have discussed these issues in detail). In short, the organisational structure from the CG level down to the district level was found to be very weak and lacking in unity of purpose. The actual management of the FPS was carried on highly unscientifically. The low level of motivation found among the consumers, FPS dealers and the officials, coupled with the strained human relations rendered the management of the FPS very ineffective.

The study also examined the PDS through the perceptions, the statements of problems and the suggestions for improvement of the consumers themselves. For this purpose, a total of 1500 consumers were interviewed (1000 from urban areas and 500 from rural areas). In the sampling process, proper representation was given to education, occupation, age, caste, income, different classes of farmers and so on. However, the EVS, being the target group, were given a higher percentage representation both in the urban sample and rural sample. This sample truly reflected the attitudes of the broad spectrum of the Konda district society. Information from the sampled consumers was collected and analysed in detail on different aspects of the PDS and the problems of

the consumers. The most important aspects examined were: awareness of PDS objectives; convenience of location of ration shops; time spent on ration purchase; reasons for long-waiting at the FPS; convenience of working hours; under-weighment; quality of distributed goods; quality of services rendered; prices charged; behavioural aspects of the FPS dealers; and the future of the PDS. The consumers were also asked to provide the reasons for their satisfaction as well as dissatisfaction. In essence, their statements indicated that although there were a number of problems in the management and distribution of the PDS, the Government could remove them through appropriate and serious measures.

The study found a very low level of motivation and participation on the part of the consumers in the day-to-day management of cooperative stores. Although a high percentage of the consumers agreed on the need for and the positive role of consumer councils, ward committees etc. a "zone of indifference" prevailed when it came to actual participation or organisation.

The analysis of organisational, financial and the operational aspects of the FPS at the micro-level was considered an appropriate instrument for the generation of a balanced assessment of the PDS in general. For this purpose, following the case study method, 5 FPS run by different agencies were selected for detailed study. The analysis revealed that the case studies possessed all the shortcomings contained in the data provided by the consumers themselves. The major problems found were: irregular release of quotas, wide gap between demand and

supply, absence of business culture and salesmanship, discourteous and rude behaviour, pilferages caused by the vested interests, interference of the influential persons and lumpen elements, economic non-viability of the FPS and the strained relations between the dealers and the consumers. In short, the study by Ojha Ghanshyam Das clearly showed the widening gap between promise and performance in the implementation of a crucial public policy.

Section IV

Other Significant Studies -- A Quick Survey

Detailed discussions and analyses have the cost of limited coverage and specific context. Consequently, the interrelationships of a number of factors and variables to the main issue under discussion cannot be adequately explained. By examining the interrelated aspects and issues, along with "the detailed survey" of the core studies, we shall be in a position to achieve the benefits of both deeper analysis and wider coverage. As already indicated, the food economy of India provides the backdrop for the functioning of the PDS. As a result, the problems of the PDS and that of the food economy were also examined specifically from the angles of Government administration, nutritional inequality, poverty alleviation, marketing management, policy hollowness, political ad hocism,

welfare mechanism and so on. Innumerable studies were carried out, especially between 1960 and 1990, from different angles, on the different aspects of the food problem in India. In this Section, however, only some of the important and well-known studies, both on the PDS and the food economy, (both all-India and State-level studies), shall be examined synoptically. Since the constraints of space and time are very strong, we have decided to make "a quick survey" of the selected studies.

As early as in the fifties, Rhys Jones (1951) assessed the working of procurement and rationing of food in the erstwhile Madras State for the period 1942 to 1949. During the period of examination, Rhys Jones observed both the systems of procurement and rationing functioning very efficiently in the State. He attributed the success of rationing to the efficient State administration and that of the procurement to the hereditary system of village officers in the State. Like the well-known work of Henry Knight (1954) at the all-India level, the survey of Rhys Jones provided a wealth of information and authentic accounts of food administration at the State-level.

Among the works on food administration in India, the study by Henry Knight (1954) has been recognised as an important contribution. It provided an authentic account on: (i) the management of food control measures and (ii) the impact of the series of measures undertaken for increasing food production during 1939-1947. The relationship between population and food supply and their growth trends over time (from 1872 to 1941) were analysed, and on that basis, Henry Knight identified "surplus"

and "deficit" provinces in the country. The chief patterns of food intake and their implications on the demand for food were also examined. The major issues of the Price Control Conferences (1939-1942), different crises leading to the Bengal famine of 1943 and the disastrous effects of the famine in Bengal were analysed, objectively and carefully. The study also examined, in detail, the approaches and recommendations of the Report of the Foodgrains Policy Committee (1943) and the Report of the Famine Inquiry Commission (1945).

The detailed accounts of the progress and problems of the Grow More Food Compaign, the PP-operations, the rationing arrangements and the Basic Plan, (the early version of the National Food Budget), both at the provincial and at the British-India levels, provided an authentic documentation. (These accounts were liberally used by the well-known later studies). Further, the beneficial effects of the price control measures, the establishment of a separate Food Department at the CG from 1942, issues relating to defence supplies and traders activities and the other major developments in the food economy upto 1947 were examined objectively. In short, Henry Knight's study reveals his great appreciation for the various administrative measures undertaken by the Governments as recommended by the Foodgrains Policy Committee (1943). He observed: "It (the 1943 Committee) brought home to the Government of India the fact that the food problem was a part of the war effort and had to be tackled as resolutely as any other war measure. How this might be done was laid in the Committee's Report which formed the basis

for all future food administration in India. Without the Committee's plans, the fate of millions in India in the famine days of 1946 must have been disastrous".

The Agro-Economic Research Centre (AERC) (1957), located in the University of Madras, examined the impact of Government's food control measures on the agrarian economy of the erstwhile Madras Presidency for the period 1938 to 1953. For analytical convenience, the study divided the entire period into 3 sub-periods - namely, (i) the pre-rationing period (1938-43); (ii) the rationing period (1943-52); and (iii) the post-rationing period (1952-53). It analysed a wide variety of data, collected both from the secondary sources and through field surveys. For the field investigation, two surplus districts, (West Godavari and Thanjavur), and two highly deficit districts, (Visakapatnam and Malabar), were selected. Detailed quantitative and qualitative information relating to the impact of food control measures was collected from 8 villages, (2 villages from each district), and 400 households, (50 households from each village). The study focussed on two major aspects: (a) the relationships between the variations in acreage and yields of food crops and the economic conditions of the producers; and (b) the effects of distribution of foodgrains by the State or quasi-Government agencies in the rationed areas.

Among the conclusions of the study, the following were more significant: (i) the fall in cereal acreage was compensated only marginally by the increase in the acreage under fruits,

vegetables and pulses; (ii) during 1945-51, the adverse seasonal conditions affected the food and non-food crops equally; (iii) the adverse monsoon conditions resulted in lower foodgrain production and lower controlled prices because of which the economic conditions of foodgrain producers became worse-off; (iv) the food control measures and the war conditions directly contributed to the faster development of consumer cooperatives; (v) the results of field investigation, by and large, confirmed the conclusions derived already on the basis of secondary data; and (vi) the field investigation revealed that the people, in general, perceived the food control measures as "necessary evils" and the rationing of food as a positive service, especially when food availability remained very low and food prices ruled very high.

This study by the AERC also provided a wealth of information, (mostly numerical data), particularly on producer and consumer prices, rationed population, progress of rationed areas, scale and composition of rations and on several other important aspects of food administration.

In its later study, the Agro-Economic Research Centre (1965) examined the actual working of the FPS in the southern region, covering the three States of Tamil Nadu, Kerala and Andhra Pradesh. Field work for the study was conducted during November-December of 1964. In particular, the study investigated whether the poorer sections really benefited from the FPS and whether the FPS really checked the prices of foodgrains. In addition to the analysis of recorded data, primary data were also collected and

analysed from three co-operative societies and their six FPS in the Madras city. Information from 160 consumer households was also collected and analysed. The study could not identify the really poor among the consumer households since income statements were not available. (Only Kerala identity cards bore the income statements). It was found that the OM-prices could not be brought down by the FPS operations as the FPS supplies of foodgrains were only limited. The study also analysed the problems of malpractices by the FPS and the overall economic viability, profitability and serviceablility of the FPS. In short, the two AERC studies are significant even now because of their pioneering nature and illuminating findings. They provided great stimulus to further studies in the area of food administration and the PDS as they contained rich data-base and skillful analyses.

In the sixties and seventies, several contributions on the food economy were made by Madalgi. However, we review here only a few "more important" studies for want of space and time. Madalgi (1967b) was one of the earliest to examine the recommendation of the Foodgrains Policy Committee (1966) for the formulation of the National Food Budget (NFB). The study provided a detailed account of the different levels of foodgrains consumption among the major States in India. Madalgi emphasised the need for developing a rational basis of "national sharing" through the NFB. The rational basis was explained in terms of equality of sacrifice in case of overall deficit and equal enjoyment in case of overall surplus in the availability of

foodgrains. The significance of the transfers of foodgrains from the surplus States to the deficit States, from the rural to the urban areas and the significance of "Central Pool allocations" in the equitable distribution of foodgrains were also underlined. (Since we would discuss the major aspects of the NFB, in detail, under Vyas and Bandyopadhyay, (1975) we do not elaborate on them here).

In another study, Madalgi (1968) estimated the magnitudes of undernutrition and the contributory factors for the same. Through the data for the period 1960-61 to 1964-65, Madalgi re-examined the estimate of Sukhatme (1965). Sukhatme (1965) estimated that more than 25 per cent of India's households were underfed during 1935-1948. Based on the NSS data, Madalgi divided both the rural and urban populations into three food expenditure groups at the all-India level. Similarly, he also worked out the proportions for all the major States in the country. Following the estimates of the ICMR and the FAO, Madalgi adopted the norm that cereals contributed 70 per cent of the total food calories. Undernutrition was defined as the difference between the actual level of food consumption (in calorie terms) and the nutritionally required level, i.e.,"the reference man's" standard of 2250 calories, per capita per day. Madalgi measured the magnitudes of undernutrition with specific reference to cereal consumption deficiency.

The entire undernutritioned population was further classified into four major categories on the basis of cereal

consumption deficiency suffered by each one of them during 1960-61 to 1964-65. The four levels of undernutrition identified were: (i) the starvation level (a deficiency of 75 per cent and more); (ii) the high level (a deficiency between 50 and 74 per cent); and (iii) the medium level (a deficiency between 25 and 49 per cent); and iv) the marginal level (a deficiency of less than 25 per cent). The results of analyses showed that a wide variety of unequal patterns of undernutrition prevailed among the rural populations of different States. The study, therefore, concluded that, at the all-India level, the overall undernutritioned should have ranged from two-fifths to one-third of the rural population between 1960-61 and 1964-65.

The study found that the problem of undernutrition basically emanated from the low income status of households in rural areas. In addition, it also found some specific factors, (prominently operating in some States), which accentuated the intensity of the hunger problem in those States. The specific factors discussed by the study included: (a) level of productivity in cereal production; (b) extent of population pressure as reflected in per capita area under cereals; and (c) the proportion of landless labour in the total population. Since all these factors extert great influence on the magnitudes of undernutrition, the study concluded that a mere increase in foodgrains production alone would not guarantee the complete elimination of the problem of hunger in India.

Another important contribution also came from Madalgi (1970). The need for a new approach in the analysis of the

problem of food in India was emphasised. It was recognised that the conventional approach in terms of "national per capita availability" would be highly inadequate, especially under dynamic conditions in which the general population, the urban population, the income levels of households and so on undergo rapid changes constantly. The sectoral balance between industry and agriculture was also examined because of its implications to the total demand for food. For the period 1951-52 to 1967-68, the relative magnitudes of factors like the trends in population, urbanisation and per capita income (all of which influence the demand for foodgrains) were examined separately for the rural and urban sectors. The analysis, based on the NSS data, revealed that the urban demand for foodgrains increased more significantly than the rural demand, especially during the Third Plan period (1961-1966). Further, the analysis of trends in the supply and demand for foodgrains showed a widening gap, especially during the Third Plan period.

Madalgi also highlighted the issues and problems relating to inter-State trade and Government operations in foodgrains. Sharp variations in the foodgrain consumption levels (separately for the rural and urban sectors), demand projections for foodgrains and fertilisers and the significance of the objectives of self-sufficiency and the NFB were also analysed in detail. On the basis of 1967-68 production level, Madalgi estimated that a 6 per cent compound rate of growth of foodgrains would become compulsory for achieving self-sufficiency in foodgrains.

Among the very early studies on the producer levy scheme at the State-level, the studies of Natarajan (1968) and Janarthanan (1968) are important. Both of them assessed the working of the producer levy scheme shortly after its introduction as an experiment in surplus extraction from the agricultural sector. But, the focus of the two differed significantly. First, we would briefly review the study of Natarajan, followed by that of Janarthanan.

Natarajan (1968) concentrated on several administrative problems encountered by the PP agencies (the FCI and its appointed sub-agents) in Andhra Pradesh. The following problems were mainly analysed, and critically commented upon: (i) mistakes and errors in the preparation of village levy lists; (ii) malpractices of the sub-agents; (iii) absence of cooperation and coordination between the Revenue Department officials and the FCI officials; (iv) lack of adequate publicity before the introduction of the scheme; (v) malpractices by the farmers; (vi) the frictions created by the dichotomy between the requisitioning agency and the purchasing agency; (vii) absence of promptitutde in the purchase of levy paddy; and (viii) the undue delay in the cash payments to the farmers. The study concluded that these serious administrative problems led to the very abolition of the levy scheme in Andhra Pradesh within 116 days of its introduction.

Janarthanan (1968) examined the rice levy scheme in Tamil Nadu and worked out the procedures and methods of procuring paddy and rice upto the level of rationing commitment by the SG. He

emphasised that the levy scheme should be progressive and rational and should also satisfy all the four canons of taxation (canons of equity, ability, certainty and convenience). A scientific assessment of marketed surplus became a precondition for working out the levy rates and the total quantum of feasible PP in Tamil Nadu. For this purpose, Janarthanan adopted the earlier estimates of 33.4 per cent of gross production by Dharm Narain (1961) as the maximum limit of available marketed surplus and that of the 25 per cent by Natarajan (1953) as the minimum limit of marketed surplus. On the basis of the adopted maximum and minimum estimates,Tamil Nadu was found to have a marketed surplus of 13.36 lakh tonnes and 10.00 lakh tonnes, respectively.

Levy rates were worked out for all the 7 size-classes of farmers which ranged from 0.37 quintal per acre for the lowest size-class to 3.36 quintals per acre for the highest size-class. The operational holdings below 1 acre were totally exempted from levy payment. (These levy rates, when implemented effectively, would collect 8.41 lakh tonnes of paddy and rice which would be well within the rationing commitment of the Government. Janarthanan, however, cautioned that effective implementation could be feasible if only the fifth canon of "remunerative PP-price" were offered to the farmers). Janarthanan also worked out the levy rates applicable for: (i) 10 per cent below the normal production; and (ii) 5 per cent above the normal production. Thus, this levy scheme could be easily made flexible to suit marginal variations (both upward and downward) in production. The transfers of produce ("disposals in kind") and the sale of

produce by the lower peasantry to the upper peasantry were also worked out. The study found that over 60 per cent of the marketed surplus came from the upper peasantry. Hence, Janarthanan justified the steeply progressive levy structure for the middle and upper peasantry, purely on grounds of equity and fairness.

Of the several contributions made by Ray on the food economy of India, we review only a few, after careful selection. Ray (1970) examined the frequencies, magnitudes and trends in the foodgrain supply and demand (imbalances) and the instabilities in foodgrain production across the States and regions in the country. The study analysed the data for the period 1951-1968. The imbalances and instabilities had laid greater responsibility on the Government for equitable distribution of foodgrains at fair and reasonable prices (not at glaringly disparate prices) thorughout the country. In addition to the detailed price analyses, the study also emphasised the urgent need for keeping in balance the utility matrix of both the producers and the consumers and the significance of treating the rural areas on par with the urban areas as far as the distribution of foodgrains is concerned.

In another paper, Ray (1971a) estimated the growth rates in demand and supply of foodgrains and on that basis projected the likely regional imbalances for the future period of 1969-70 to 1983-84. The study found sharp variations in the average consumption availabilities and demand growth rates in foodgrains

across States and regions. The examination of the prospects of meeting the foodgrain demand through domestic production during the same period indicated that only a 5 per cent compound annual growth rate in production could comfortably meet the emerging foodgrain demand growth. The regional growth rates in foodgrain production were estimated on the assumption that, at the all-India level, the production levels of different foodgrain crops would equal their respective demands. While indicating the various problems of food management that would arise out of the regional imbalances, the study also emphasised the crucial role of buffer and reserve stocks of foodgrains in India.

Ray (1971b) also examined the relationship between the production variations and the uncontrolled variables (climatic factors) such as rainfall, temperature, run of dry days, humidity and day length. The study underlined the significant role played by the controlled variables such as fertilisers, pesticides, irrigation and prices in the determination of yield rates and acreage under cereals. Among the set of uncontrolled variables, the study found that the quantum, distribution and the timeliness of rainfall exerted greater influence on yield rate and acreage variations. Recurring droughts, floods and the variability of the climatic factors made the sustained agricultural growth more difficult and caused instabilities in foodgrain production. Among the uncontrolled variables, the influence of rainfall on production was examined more specifically. These analyses were carried out at two levels; namely, at the regional levels (each region comprising of several States) and at the all-India level.

The study found that 60 per cent of the past variations (between 1950-51 and 1964-65) in cereals and rice production around their respective trend lines were explained by rainfall alone. However, the amplitude of production fluctuations differed significantly among different States of India.

The variations in production of cereals and rice were also analysed in relation to the rainfall indices constructed for the period 1876-78 to 1962-64. Cumulative production deficits and surpluses of cereals and rice that occurred during the length of the sequence years for the entire period were worked out. On the basis of the assumption of stationarity in mean and variance of rainfall indices, as observed in the past, Ray estimated three alternative quantities of reserve stocks of cereals to be maintained in order to even out most of the worst or best production-rainfall sequences in future. The three reserve stocks estimates ranged from 7 mt to 11 mt of cereals. The rice and wheat components of the reserve stocks were also worked out separately.

Another important relationship examined by Ray (1972) related to the determinants of price behaviour of agricultural commodities, particularly foodgrains. The secondary data for the period 1952 to 1968 were statistically analysed. Ray found a direct, definite and positive relationship between current levels of foodgrain availabilities and the movements in foodgrain prices. (It should be noted that this period was a period of chronic food shortages in India). In the doctoral research of Ray (1973), a more elaborate treatment of these issues and

aspects could be found.

The study by Ramamurthy (1974) examined the levels of poverty and destitution in Tamil Nadu vis-a-vis the trends in the production and distribution of wage goods (cereals, pulses, sugar, tea and cotton) for the period 1960-61 to 1970-71. In addition to bringing out the consumption inequalities in Tamil Nadu, through the NSS data, Ramamurthy identified the proportions of people living under the poverty-line and their absolute numbers for the years 1960-61, 1961-62, 1963-64, 1964-65 and 1969-70. The geographical and occupational concentration of poverty in Tamil Nadu was also paid special attention. The study emphasised the superiority and advantages of the PDS mechanism over the other anti-poverty measures initiated by the Government. Like many other studies, the study by Ramamurthy also provided a set of policy recommendations. Ramamurthy explained, in detail, the significant role that the PDS could play in the eradication of poverty and destitution in Tamil Nadu. This study has the special merit of containing a wealth of information in the form of tables and numerical statements.

The Indian Economic Association Conference (1975) selected the theme of PDS in India for discussion. Consequently, several analytical and critical papers on the PDS were presented. All of them provided "the status report" of the PDS in India. (Since the issues, analyses and findings of all these papers have been already covered by us under many studies, we do not specifically take up these papers for review, either individually or

collectively).

The Report of the Foodgrains Policy Committee (1957) strongly recommended the drawing-up and implementation of a National Food Budget (NFB) in accordance with the basic principle of sharing the national availability of foograins in a fair and equitable manner. Later on, the Reports of the National Commission on Agriculture (1976) also emphasised the significance of the NFB. However, only Vyas and Bandyopadhyay (1975) developed a model NFB for the year 1975. They analysed the precarious balance between supply and demand during 1950-1970 which often led to price rises in foodgrains. They found that the fluctuations in the inter-temporal per capita availability of foodgrains and the sharp disparities in the availability of grains in different States further complicated the price situation. They hypothesised that along with the restraint in money supply and the incentive for greater production, the minimisation of inter-temporal and inter-spatial fluctuations could also contribute significantly to the much desired price stability. Through detailed analyses, Vyas and Bandyopadhyay showed that the NFB approach could minimise the inter-temporal and inter-spatial fluctuations in the availability of foodgrains and, therefore, ensure price stability. They suggested that the problem of unequal distribution in the availability of foodgrains could be solved by the adoption, formulation and implementation of the NFB for every year.

Vyas and Bandyopadhyay illustrated the construction and formulation of a NFB by selecting the year 1974-75. They

estimated the extent of surplus and deficit of all the States on the basis of the estimates of requirements and availability of foodgrains in all the States. Depending on the three levels of population coverage by the PDS, they worked out 3 alternative net tranfers of foodgrains from the surplus States to the deficit States. The estimated three net transfers ranged from 4.5 mt to 33.3 mt of foodgrains. Although the three alternatives of Vyas and Bandyopadhyay appear to be similar to the three alternatives developed by Gulati and Krishnan, there are minute technical differences between them. Gulati and Krishnan (1975) themselves have clarified these differences succintly.

In the seventies and eighties, Barbara Harriss had made many contributions on a variety of themes. In all the studiies, Barbara Harriss focussed on the State of Tamil Nadu. Of the many contributions made by her, we briefly review only a select few which have direct or indirect relevance to the survey paper.

Barbara Harriss (1977) examined the ways in which the State levy on paddy and rice and the associated factor of movement restrictions controlled and distorted the price behaviour of "free market" and influenced the very choice of milling technology in Tamil Nadu. Data on levy prices and the OM-prices for the period 1972 to 1974, collected from North Arcot district, were analysed. After careful analysis of various aspects of the paddy-rice levy scheme in Tamil Nadu, Barbara Harriss concluded thus: "It is by now obvious that in a dual (or treble) market for foodgrains, it is the free or residual market that is most

distorted and that it is here that the price movements are most uncertain....... The system of levy and movement restrictions is subsidised not by farmers or by traders, not by the Government, but by consumers in the income group unentitled to rice at Fair Price Shops. Those people comprise the tax-paying groups in urban areas but make up a large proportion of rural areas where coverage of the vulnerable sector is most incomplete".

In order to test an hypothesis on the nature of price formation for paddy and rice, Barbara Harriss (1979) analysed the "structure, conduct and performance" of the composite market structure on the basis of a mass of field data collected from eastern North Arcot district. She compared the private market with that of the public sector market (including the PDS) in terms of their "structure, conduct and performance". Through the comparative analysis, Barbara Harriss explained, in detail, the relative merits and demerits (imperfections and deficiencies) of the two kinds of markets. At the present level of economic development in India, the co-existence of both the markets became inevitable. The study also indicated the number of problems that would crop up in the event of prefering one system of market structure to the complete elimination of the other. In spite of the dual market and dual price, the conditions of the EVS continued to be deplorable and desperate. Barbara Harriss observed thus: "Further, it is the "free" or residual market for coarse rice which bears the brunt of the compensatory hoist when food grains are sold at a loss to Government. Again it is not

necessarily the "fault" of the free market that the poor are actively discriminated against. It is the poor for whom employment opportunities will probably be reduced if private trade were completely replaced by Fair Price Shops. Both public and private sector marketing structures seem to work to the disadvantage of the most numerous and least powerful part of the society".

In another well-known study, Barbara Harriss (1984) examined some aspects of the nature of the State (Government authority) and some aspects of the nature of market. She paid special attention to the performance of the State as the merchant and the performance of the merchant as the State. The consequences of State trading activities and the consequences of Government regulation of the private mercantile sector were analysed in detail. The study also focussed on the significance of the private mercantile sector in the resource-base of the State of Tamil Nadu, in the formation of mercantile policy and in terms of the extent to which State interventions operate in the interests of private merchants. A mass of secondary data on the distribution and concentration of mercantile power (from 1972 to 1976) and on the OM-prices (from 1957 to 1977) were analysed. On some aspects, the study also collected and analysed field data from Coimbatore district. The analysis of secondary and field data revealed marked inter-regional price variations and marked price variations over time in the case of almost all agricultural commodities.

The regulated agricultural markets, State trading in

foodcrops and cotton, the PDS and the kind payment schemes, co-operative marketing, agricultural storage, the ways in which the private trade finances the State, the ways in which the State finances the private trade and agricultural production and the role of agricultural merchants in the formulation of mercantile policy in Tamil Nadu were the other important issues that Barbara Harriss had examined in this study. It was found that even the industrial capitalist class and the agricultural capitalist class could not break the power of the mercantile class in the State of Tamil Nadu. The stated objectives of State intervention and planning, "were to capture the commanding heights of the economy from which position its lower slopes and less commanding summits could be strategically regulated". But the study found the merchants in the commanding heights of the economy. In the words of Barbara Harriss: "Merchants profoundly infiltrate all interventions which have the purpose of curbing their activity. Merchants occupy the commanding heights in the sphere of exchange, not the State. The weakness of State intervention in some areas, its strength in others, is an expression of the degree to which it serves mercantile interests in the form in which it is implemented".

In another major study, Barbara Harriss (1985) examined the resource flows in the non-farm economy and the impact of food and nutrition interventions in Tamil Nadu. She carefully reviewed various Noon Meal Schemes (NMS) implemented in Tamil Nadu since 1956. But the NMS, introduced in 1982, became the focal point of detailed research. The consequences of three important

interventions, viz., the NMS, the PDS and the imposition of commercial taxes on alcohol were carefully assessed. In particular, the effects of the NMS on nutrition, employment, health, education, the social and political gains etc. were estimated through field research in North Arcot district. The burden and the opportunity costs of the financial allocations made available to the NMS were also discussed. Through the field investigation, Barbara Harriss revealed the proportions of people who actually needed the nutritional supplement from the NMS and the proportions of people who did not need it. The study concluded that the NMS had created far-reaching ramifications on the State finances, the PDS and on the Centre-State relations. The opportunity costs of the NMS were analysed in terms of: (a) increasing the educational budget in Tamil Nadu; and (b) increasing the distribution of the PDS. In short, the study found strong evidence to the positive impact of the NMS, the PDS and the imposition of commercial taxes on alcohol on the EVS. It also discussed, in detail, a number of malpractices observed in the implementation of the NMS. (In her latest contribution, Barbara Harriss (1991) re-examined the food and nutrition policies of Tamil Nadu and brought to light several newer insights and perspectives on the issues relating to food and nutrition),

Vipin Garg (1980) examined the functions and the management of the FCI for the period 1965 to 1980. The study mainly enquired whether the objectives of the FCI could be realised upto the satisfactory extent, especially without incurring an undue

and high costs of operations. The deterioration in the quality of foodgrains, storage losses, losses in transit, the ever increasing handling cost etc. were found to the main contributory factors for the enormous amount of financial losses suffered by the FCI. It also compared the costs of operations of the FCI with those of the private traders. The costs of all the FCI activities were found to be far in excess of those of the private traders. (It should be noted that Uma Lele (1973) also concluded that the private grain trade in India operated more efficiently without the intervention of the public policies).

The study also analysed the trends and implications of the Governments' (both the CG and the SGs) huge food subsidies and the concessional credit facilities enjoyed by the FCI through the consortium of nationalised banks. In short, the study found the functioning of the FCI highly uneconomical and unjustifiable. (Tyagi (1990) also came to similar conclusions on the FCI operations, which we have examined, in detail, in Section II). The main problem with the study is that almost all the conclusions were derived from the point of view of pure economic criteria. We have strong reservations about the conclusions based on the pure economic criteria alone. Since the FCI has been the chief source of supplies to the PDS, (which is a social welfare programme), the negative conclusions of Vipin Garg appear to be unduly biased against the maximisation of social welfare. In other words, the differences between the objectives of private trade and the objectives of public intervention were not paid the required careful attention that they deserve.

The conference volume of the Indian Institute of Public Administration (1981) focussed on the examination of the objectives, policies and the implementation of the PDS at the all-India level. Among the published papers of the volume, the theme paper by Kamta Prasad made a critical evaluation of the PDS in India. The chief merit of the paper was that it discussed the main findings and results of a number of empirical studies carried out in various parts of the country. In that light, Kamta Prasad underlined the significance of restructuring the PDS. The restructured PDS could function as a price relief agency to the EVS more efficiently and more equitably.

The seminar volume of the Indian Institute of Public Administration (1987) brought to the limelight an excellent "status report" on the PDS in India, covering upto 1986-87. In particular, the papers of Bhabatosh Datta, Kamal Nayan Kabra and Anil Chandy Ittyerah and of Barbara Harriss had discussed not only the problems and issues of the PDS but also offered the alternative strategies to be adopted for achieving the maximum effectiveness of the PDS. The position paper of the Ministry of Food and Civil Supplies, GOI and the Report of the Seventh Plan Working Group on the PDS had analysed, in detail, the recent developments in the PDS in India.

On the basis of select secondary data, Kurien (1981b) examined the food situation in India with the purpose of delineating the contours of the socio-economic aspects of the food problem. The study clearly showed the paradoxical situation

of increased undernutritioned population co-existing with the growing food output. The analysis of trends in foodgrain production from 1950-51 to 1978-79, vis-a-vis the trends in population growth, indicated that the "population explosion" alone could not explain the entire problem of food in India.

Kurien also analysed the problems of consumption inequalities, the implications of 'overt' and 'latent' hunger and the trends in the production of coarse cereals and fine cereals over the decades. The urgant need to protect the consumption requirements of the EVS through public intervention was emphasised. The protection could be achieved only through the shift from production-oriented public measures to distribution-oriented public measures. Given the nature of the food problem in India, Kurien concluded that the biased role of the market forces (biased in favour of the resource owners) would only aggravate the sufferings of the EVS.

The conflicts arising out of the differences between the objectives of the private production system and that of the PDS were explained in detail. Through the analysis of population and production data, Kurien showed that the food problem in India arose not because of insufficient production of foodgrains but because of inefficient distribution of what was produced within the country. The market-demand based private production system in agriculture has also created the problem of imbalance between superior cereals and inferior cereals which again affects the EVS very adversely. The study underlined the deplorable reality that in spite of the huge buffer stock with the Government, even the

quantitative food problem could not be solved. Kurien concluded that this only reflected the helplessness and ineffectiveness of public policy and the PDS in India.

The study by Rao (1982) analysed the close inter-relationships and the mutual dependencies between the problems of food, nutrition and poverty. The various aspects of these problems were examined both at the national level and at the levels of the States through a mass of secondary data, collected from different sources. In particular, the trends and patterns of nutritional and income inequalities were analysed on the basis of NSS data. Further, in comparison to the urban households, the rural households were found to suffer from greater nutritional inequalities and a higher market dependence for food purchases. The study also highlighted the greater incidence of the problems of undernutrition and malnutrition among the child population. The sharp variations in food availabilities and nutritional inequalities across the States and among the various income/expenditure classes were also discussed in detail. In the light of his findings, Rao emphasised the urgent need for developing a national policy and planning for food and nutrition in India which would attempt to match the magnitudes of the supply variables with those of the demand variables.

While the study by Henry Knight (1954) examined the problems and performance of war time food administration in India, the study by Bora (1982) analysed, in detail, the issues of peace time food administration, with special reference to Maharashtra

State. Bora, in his thesis - turned monograph, examined the strengths and weaknesses of the managerial and administrative aspects of the official structure of the PDS in Maharashtra. The study underlined the significance of an efficient and effective administrative mechanism for the attainment of best results in the PDS. The administrative arrangements, more particularly of the official structure and the staffing patterns of PP, storage and distribution of foodgrains were studied in detail. Both primary and secondary data were collected and analysed for the purpose of an overall assessment of food administration in Maharashtra.

The monopoly purchase-cum-compulsory procurement of jowar was observed to be a unique feature in Maharashtra. The PP-operations were examined through field investigation, conducted in the 5 districts of Marathwada region. In all, data from 95 levy cultivators residing in the 25 villages, scattered in the 5 selected districts, were collected and analysed. Most of the levy cultivators favoured the discontinuance of levy system following improvement in the food situation which revealed the farmers' intrinsic dislike for the PP-operations. As regards the distribution of foodgrains, the study recognised the inevitability of huge quantity of distribution in a deficit State which also has a higher proportion of urban population. But, in the distribution of the EC, the ultimate objective should be consumer satisfaction rather than the level of profit. In this connection, Bora observes, "the efficiency of (food) administration is not to be judged by formal and technical

standards but by the degree of consumer satisfaction that it achieves".

In order to study the problems of consumers and their satisfaction, Bora conducted a "consumer survey" in the 5 districts of Marathwada region. Data from 130 consumers, spread across 25 villages, were collected and analysed. Bora found that most of the problems of food administration arose from the official structure and the staffing patterns in storage and distribution operations. The determinants of the degrees of dependence of the consumers on the PDS-purchases and the OM-purchases were given special attention. Inadequacies of PDS supplies, poor qualities of foodgrains, prices of distributed commodities, (PDS-prices and OM-prices), appropriate population coverage, storage problems etc were the other more dominant issues analysed in the study. Unlike the levy cultivators, (who favoured the discontinuance of the levy system), the PDS consumers strongly preferred the continuance of the PDS even after the substantial improvement in food situation.

Of the several merits observed in the study of Bora, the following three may be mentioned. (i) It is one of the few studies which duly recognises the crucial role of efficient administration in any Government service delivery system. (ii) It has come out with an innovative suggestion that there should be a "research cell" for the continuous study of the existing administrative methods and procedures and for the development of new ones. (iii) It also lays emphasis on the achievement of high degree of commercial flexibility, business efficiency and

official autonomy at different levels of the administrative hierarchy.

Among the many contributions made by Amartya Sen on the themes of food, nutrition, poverty, famines, exchange entitlements, hunger, public action, sex bias and sex discrimination in food consumption etc, we briefly discuss below only a select few, especially those published in the 1980s. While discussing the question of access to food, Sen (1982) concentrated on the three serious conflicts encountered (or battles persistently waged) by the EVS even during the non-famine situations. They are: (i) conflicts induced by the operation of market forces; (ii) conflicts arising out of the political processes; and (iii) food conflicts found within the family relations. Sen remarked thus: "India's so-called self sufficiency in food goes hand in hand with a quarter -- perhaps a third -- of the rural population as persistent losers in food battles, suffering from regular hunger and systematic malnourishment."

In another well-known study, Sen (1984) examined various issues relating to sex bias and sex discrimination in food intake even within the family. The various implications of such sex discrimination in food intake on the development process were carefully analysed. Sen (1986) further refined his entitlement approach to food in one of his recent studies. Sen observed: "the (food) acquirement problem is often neglected not only by non-economists but also by many economists, including some great

ones. ...... By focussing on the acquirement problem, and on the major variables influencing acquirement, the entitlement approach provides a general perspective that can be fruitfully used to analyse the phenomenon of hunger as well as the requirements of food policy."

Turning from the theoretical issues of measurement of economic inequality and poverty, Sen (1989) (along with Jean Dreze) focussed on the significance of public action in the eradication of famines, chronic undernutrition and endemic deprivation. The nature, variety and the usefulness of public action were spelt out in great detail. The study also examined different areas of public action, different strategies to be pursued and the appropriate agents of public action. Sen made it very clear that public action should not be confused with State action only. Public action includes all actions undertaken by the public themselves in the socially and politically organised ways. Sen observed: "It is important, in this concluding section, to re-emphasise our focus on public participation -- collaborative and adversarial -- in eradicating famines, undernutrition and deprivation. It is, as we have tried to argue and illustrate, essential to see the public not merely as "the patient" whose well-being commands attention, but also as "the agent" whose actions can transform society. Taking note of that dual role is central to understanding the challenge of public action against hunger".

In the eighties, Poduval had made several contributions on the food economy of Tamil Nadu. However, we take up for brief

review, only a few important ones. Through the analysis of secondary data, Poduval (1984) examined the functioning of the PDS in Tamil Nadu. This study focussed on: (i) the changing emphasis on the role of the PDS over the decades; (ii) the characteristics of the foodgrain economy ; iii) objectives of policy interventions; (iv) trends in the COP of paddy; (v) the determinants of PP-operations; and (vi) the extent of benefits accruing to the PDS consumers. In his overall assessment, Poduval concluded that in respect of accessibility to food or entitlement to foodgrains, the PDS supplies in Tamil Nadu were highly inadequate to make any impact on the consumption levels of PDS consumers.

In his later work, Poduval (1986) placed the analysis of PDS within the broader and larger theme of the food economy of Tamil Nadu. This study concentrated on the analysis of: (a) the significance of foodgrains in the State economy; (b) changes in the cropping pattern; (c) problems faced while adopting the new agricultural technology in the State; (d) the significance of coarse grains and pulses in the attainment of self-sufficiency; (e) the problem of instability in foodgrain production (1960-61 to 1984-85); and (f) the problem of inequality in consumption patterns across expenditure classes in the State. The impact of public intervention and the implications of various food issues for policy formulation in the State were also analysed in detail. (The same study became a printed monograph of Poduval (1987) subsequently).

In another important contribution, Poduval (1988) analysed the functioning of the PDS within the still larger context of the issues of Tamil Nadu agriculture. This study analysed the objectives and achievements of the PDS, the noon meal scheme, the changing urban bias and the absence of food security system in the State. On the eradication of hunger, Poduval observed: "The increase in food production is a necessary but not a sufficient condition to eradicate hunger defined as inadequate food intake (in terms of calories). It is the landless labourers and marginal farmers who suffer most from lack of accessibility to food. .... Public distribution has, therefore, to be supplemented by programmes seeking to provide the poor with employment and incomes."

Bragadha (1986) examined the impact of PP of paddy and rice on various aspects of the food economy in Tamil Nadu. The low level of PP, the inadequate supply of rice by the PDS and the absence of buffer stocking were the major issues of analyses carried out by Bragadha. The study concluded that the PP-operations had significantly influenced the pattern of business, availability, prices and the distribution of paddy and rice in the State. The PP-operations should be used with due caution and care by the Government agencies as they are powerful and influencial weapons capable of hurting both the producers and the consumers of foodgrains.

The problem of food (both the quantitative and the qualitative dimensions) has been the most important component of poverty in India. Hence, the impact of agricultural output

growth, especially foodgrains, on the levels of rural poverty continues to be examined by several studies from the mid-seventies. In the recent past, Gilbert Etienne (1988) examined the relationship between growth and poverty through the analyses of village survey data. The village surveys were carried out in the selected areas of different States at three points of time from 1963-64 to 1985-86. Some of the selected villages belonged to the advanced regions while others belonged to the poor but potentially rich areas. The third category of villages belonged to the areas with physical and geographical constraints.

Gilbert Etienne also paid sufficient attention to the slogan-like criticism of Green Revolution, namely, "the rich get richer and the poor get poorer". However, Etienne could not subscribe to this conclusion fully. He fitted the village survey data and his participant observations into an all-India perspective on the growth-poverty relationship. Between his first survey in 1963-64 and the third survey in 1985-86, Etienne found several improvements taking place in the living conditions of the rural poor. The absence of mass starvation deaths, the fast spreading of technical innovations even to the remote villages and the reduction of acute poverty were among the most emphasised improvements observed during the two-decade study period. Gilbert Etienne, therefore, concluded that the battle against poverty in India (launched through the GI programmes, including the PDS) had been half-won since only in the advanced regions improvements in the living conditions of the rural poor could be observed. In the sluggish regions of the country, a marked

improvement could not take place owing to certain socio-political and techno-economic factors and processes. In support of his `half-won battle' conclusion, Etienne discussed the corroborative evidences of several leading studies already carried out on the same theme. In short, the study by Gilbert Etienne confirms that the welfare intervention programmes such as the PDS, when implemented along with the growth-oriented programmes of the Governments, positively contributes to the reduction in the intensity of the problems of food and poverty. (There are many studies of this nature and conclusions. We do not go into them, chiefly because of time and space constraints).

By using the secondary data from different sources, Annadurai (1988) made an assessment on the working of the PDS in Tamil Nadu for the period 1950 to 1986. This study focussed on: (a) the transition from private trade to State intervention; (b) the cycle of control, decontrol and recontrol experiment in India; (c) the economic rationale of the two-market two-price system; (d) the conflict of interests between producers, consumers and traders; (e) trends in the PP-operations and the quantities of PDS distribution over time; (f) distribution of the FPS in Tamil Nadu; (g) the role of the State Civil Supplies Corporation; (h) interlinkages between OM-prices and the PDS issue prices; (i) the levels of food consumption across expenditure classes and the extents of inadequacies in distribution; and (j) the closeness of food issues to State politics. On the basis of the analysis of secondary data, Annadurai hypothesised that the PDS in Tamil Nadu has generated

beneficial effects on the PDS consumers, and underlined the significance of empirical verification of the secondary data in any beneficiary-oriented public intervention programme.

The evaluative study by the Agro-Economic Research Centre (1988) of Sardar Patel University on the working of the PDS in Rajasthan has become an important recent addition to the PDS literature in India. The study was carried out through the analysis of both secondary and primary data. For the purpose of State-level macro analysis, it used the secondary data collected from various sources. For the purpose of in-depth analysis, field investigation was conducted in the backward district of Jaisalmer in Rajasthan. Detailed data from 3 FPS (selected from the interior areas of the district) and the 90 consumer households attached to them were collected and analysed. Relevant information was also collected through the PDS officials and the knowledgeable persons in the villages. The field work was carried out during April 1983 by keeping the one year period from April 1982 to March 1983 as the reference year. The organisational arrangements and operational problems of the PDS in Rajasthan were examined in detail at three levels -- State-level, district-level and village-level. The consumption patterns across regions and districts and the extent of dependence on the PDS by the consumer households were the other important aspects of examination. The chief merit of the study is its set of suggestions and recommendations for strengthening and streamlining the PDS in Rajasthan. The suggestions and recommendations of the study duly recognised the physical

features of the State such as sparsely-populated areas, drought-prone areas, deserts and the vast tracts of hilly and tribal areas.

In the edited volume, Per Pinstrup-Anderson (1988) critically reviewed the entire research initiated by the International Food Policy Research Institute (IFPRI) during 1978-1986 on the question of food subsidies in developing countries. The two papers on India (by George, and Binswanger and Quizon) discussed the food subsidy issues of India within a comprehensive and analytical framework. The analyses and approaches of the edited volume were classified under the following four heads: (i) explicit and implicit food subsidies; (ii) benefits from food subsidies; (iii) costs of food subsidies and (iv) development of a cost-effective approach. (As already indicated, (details on page 3), we would take up the issues relating to food subsidies and their implications for more detailed analysis in Paper III). However, the critical review of Ashok Gulati (1989) provides an illuminating account of this highly analytical work by the IFPRI.

Wendy Olsen (1989) made a critical assessment of the Two-Rupee-a-Kilo Rice Scheme functioning in Andhra Pradesh from 1983. While recognising its popularity and usefulness, Olsen also analysed the social, political and economic implications of the scheme. The temporal and spatial distribution of rice subsidies in Andhra Pradesh were analysed in the light of the findings of a number of well-known earlier studies, including that of Radhakrishna and Indrakant (1987). (We had reviewed this

study, in detail, in Section III). This made the entire exercise by Olsen very interesting and meaningful. While doubting the bearing capacity of the heavy burden of rice subsidy of the SG, Olsen concluded that the new scheme, although it directly supported the poor, could not eradicate poverty substantially as it leaves the basic economic structure of the State undisturbed and unchanged.

The study by Singh (1991) on the PDS of Bihar, (one of the economically underdeveloped States in the country), duly recognised the significance of the PDS in the process of economic growth and development. Singh mainly examined the degree of effectiveness of the PDS, with special reference to price control (of the EC) and poverty alleviation in the rural areas. The study analysed in detail: (a) the changing role of the PDS over the successive Five Year Plans; (b) the development of the PDS in the major States and the Union Territories since Independence (covering upto 1985); (c) the growth and availability of infrastructural facilities in different States vis-a-vis the development of the components of the PDS; and (d) the effectiveness of the PDS in controlling prices and alleviating poverty in Bihar State. Finally, the study also presented a telescopic view of various failures of the PDS, at the all-India level, in general, and at the level of Bihar State, in particular. Like many other studies in the area, the study by Singh also recommended an integrated package of measures for improving the PDS in Bihar after the detailed discussion of its serious deficiencies. In view of the problems of population

pressure, higher OM-prices, higher poverty levels and the economic backwardness of Bihar, Singh underlined the urgent need for a more efficient PDS for the benefit of the EVS.

In a very recent study, Mahendra Dev and Suryanarayana (1991) examined the validity of the two usual criticisms of the PDS-functioning in India. The criticisms are: (i) PDS has strong urban bias; and (ii) the benefits of the PDS go more to the middle and high income groups than to the poorer groups. The study was based on the latest available NSS data on the utilisation of the PDS by the consumers. The NSS 42nd Round on Social Consumption covered the period from July 1986 to June 1987 and provided detailed data both at the all-India level and at the levels of all major States in the country.

Mahendra Dev and Suryanarayana had developed six criteria for examining the question whether the PDS-functioning has urban bias in India. The NSS data for rice, wheat, kerosene, sugar and edible oils were tested through the six developed criteria. The authors had carried out elaborate statistical analyses and presented their results at two levels. At the all-India level, the study found that the nature and magnitudes of urban bias varied for different PDS commodities considerably. Variations were also found because of the use of a particular criterion. The results, by and large, showed no clear urban bias in the PDS-functioning at the all-India level. In fact, the results for some commodities revealed actully rural bias of the PDS.

At the State-levels, the results showed considerable inter-

State variations in the PDS percentage purchases between rural and urban areas. The inter-State variations were also commodity-specific. Among the States, West Bengal was the only State which appeared to have greater PDS urban bias. At the State-level analysis, the study came to the overall conclusion that in majority of States, the rural sector PDS purchases exceeded the urban sector PDS purchases, both in terms of volume and in terms of value of PDS purchases. On the basis of the results of State-level and all-India analyses, the study concluded that no urban bias was found in the functioning of the PDS during 1986-87.

Mahendra Dev and Suryanarayana had also examined the question whether the PDS-functioning in India favours more the middle and high income groups than the EVS. The question arises because the main objective of the PDS has been to provide food security to the poor and insulate them from the effects of rising OM-prices. Based on the relative dependence criterion, (the ratios of PDS purchases to total purchases), they examined the nature, magnitudes and direction of the PDS-functioning at two levels (at State-levels and at all-India level). The elaborate statistical analyses for the all-India data revealed that all the population groups depended on the PDS more or less to the same extent with respect to all commodities. The slight variations found in the cases of a few commodities did not alter the main finding much. Thus, on the basis of relative dependence criterion, the study concluded that the PDS-functioning in India did not favour the middle and high income groups at the cost of the EVS.

The State-level analyses showed considerable inter-State variations in the relative dependence of the poor on the PDS, especially for commodities like rice, wheat and edible oils. The dependence of the poor on the PDS for sugar and edible oils was found to be higher in most of the States, compared to their open market purchases. In the cases of rice, sugar and kerosene purchases, the middle and high income groups had higher PDS purchases in some States. The study found that, by and large, there was no strong evidence to the criticism that the functioning of PDS benefits the middle and high income groups more than the poorer groups in the country.

In this long paper, we have reviewed many leading studies on the PDS, at two levels. At the first level, some all-India and State-level studies have been subjected to critical and thorough reviewing; (in Sections II and III). At the second level, in the current Section (IV), "a quick survey" of a number of studies has also been made. However, there are several directly relevant studies and reports which could not be reviewed even in the quick survey, chiefly because of the constraints of time and space. These studies and reports are mentioned here purely "for documentation purposes."

While concluding the survey of literature, it is important to pay attention to what we have emphasised in the introductory remarks. The point relates to the direct and strong relationships that the problems and the issues of the PDS have with a large number of macro variables of the economy. Through

the survey of many studies on the problems and issues of PDS, we have repeatedly observed their direct and strong relationships with the aspects and issues of population size, levels of urbanisation, levels of poverty, income inequalities, consumption inequalities, nutritional inequalities, foodgrain production levels, marketing methods, storage and buffer stock strategies, open market price levels, Government price and subsidy policies, food management strategies, levels of Government administrative efficiency and so on. Even among these macro aspects and variables, the problems and issues of PDS have much closer relationships with the aspects and issues of poverty, nutrition and income distribution. There are numerous studies under each of the three closer aspects. Although we recognise their closeness to the PDS issues, we could not even mention them under documentation part because of: (a) the large number of studies; and (b) the set focus of the survey paper. Hence, the studies and reports mentioned below represent only those select documents which have direct discussions on the problems and issues of the PDS.

The following studies and reports that appeared upto 1970 provide very valuable discussions and critical insights: Patwardhan (1958), Report of the Ford Foundation (1959), Dantwala (1961), Joseph (1961), Report of the Foodgrains Prices Committee (1964), Report of the Study Team on Fair Price Shops (1966), Rao (1966), Raj (1966), Southworth and Johnston (1967), Dandekar (1967), Mann (1967) and the National Council of Applied Economic Research (NCAER) (1965, 1969, 1970).

The following studies and reports that appeared after 1970 offer very critical and useful analyses on the problems and issues of PDS and the food ecconomy of India: Bhatia (1970, 1977, 1985, 1988), Khusro (1973), Rao (1974), Lester Brown (1974), Report of the Committee on the Economics of Public Distribution System in Gujarat (1975), Hanumantha Rao and Subbarao (1976), Jha (1976), Radha Sinha (1976, 1978), Douglas Ensminger (1977), Ramachandran (1977, 1982), Kainth (1982), Raj Krishna and Ajay Chibber (1983), Acharya (1983), Krupadanam (1985), Mellor and Desai (1986), Ali Mohammad (1986), Ajit Kumar Mitra (1986) and Bhaskaran (year not given).

Among the international agencies studying the food issues of India, the International Food Policy Research Institute (IFPRI), the Food and Agriculture Organisation (FAO) and the World Bank occcupy very important place. In the survey paper, we had already referred to some of the works of IFPRI and FAO. Of the many studies sponsored by the World Bank, the following contain valuable data, critical analyses and important conclusions on the food economy of India: Mellor (1975), John Wall (1978), Sarma and Shyamal Roy (1979), Raj Krishna and Raychaudhuri (1980), Shlomo Reutlinger (1980), Amartya Sen (1980), Pravin Visaria (1980), Robert Chambers and others (1981), Rashid Faruqee and Ethna Johnson (1982), Pasquale Scandizzo and Gurushri Swamy (1982), Michael Lipton (1983) and Subbarao (1989).

Section V

Issues and Areas for Further Research

On the basis of the nature, characteristics and kind of conclusions derived by the PDS studies that we have surveyed, we may group them broadly into two sets. One set of studies has approached and evaluated the PDS from the standpoint of pure economic principles and criteria. These studies gave primacy to the considerations of cost-benefit ratios, maximisation of rates of return, economic efficiency, virtues of private trade and the disadvantages and diseconomies of large-scale State trading operations. Through elaborate analyses, arguments and explanations, these studies have "proved the failures of the PDS". The other set of studies has approached and evaluated the impact of PDS from the standpoint of accrued welfare benefits to the PDS consumers. While examining the extents of beneficial effects, these studies have also suggested several alternative PDS strategies to be adopted for the generation of still greater beneficial effects.

The conclusions of the two sets of studies (and their suggested alternatives) have raised a number of issues which need to be further researched and examined. (In this context, we recognise that, in theory, all issues (and even non-issues) could be studied permanently without even deriving any kind of results and conclusions). However, in this Section (V), we briefly indicate only the most important issues and areas that could be

further examined with the objective of generating greater beneficial effects to the PDS consumers. For convenience of better understanding and greater appreciation, the identified issues have been classified broadly under the six major areas. The dividing line of this classification is very, very thin. In the statements of issues and questions for further research and examination, we shall be extremely brief, since each and every issue and question had been discussed very elaborately, upto a point, in the earlier four Sections of the survey paper.

Issues relating to Some Basic Questions on the PDS

One of the basic issues that needs to be carefully examined is the question whether the PDS in India could be completely abolished. Closely related to this question is the analysis of the short-term and long-term implications of the complete abolition of the PDS. The examination of the hypothetical question would indicate whether the PDS is absolutely necessary in the Indian context. During the examination of the main issue, the following related questions should also be addressed. (a) Would the complete abolition of the PDS affect the poorer households? (b) Can the free market economy and private traders protect the food consumption requirements of the vulnerable sections? (c) Are free market conditions the seeds of food scarcities and famines? and (d) Who would be the net gainers of the complete abolition of the PDS in India and why?

Many studies have reported their "conclusions of the failures of the PDS"; but, most of them have also recognised the

absolute necessity of the PDS and the two-market, two-price system in India. These conclusions are contradictory and inconsistent. The conclusions of the failures of PDS are, in fact, the failures of policy and administration. Many studies have misinterpreted and misjudged these failures as the failures of PDS to generate beneficial effects on the consumers. These studies have failed to separately analyse the aspects of failures of policy and administration and the aspects of generation and magnitudes of beneficial effects. This confusion and misinterpretation could be erased through unbiased, objective and scientific studies. In addition to the analysis of the aspects of failures of policy and administration, the aspects of the nature, magnitudes and the incidence of the beneficial effects of the PDS should be studied systematically.

Studies have found a gradually declining per capita consumption of cereals, both at the all-India level and at the levels of States. Several poverty studies have concluded that the absolute number of people living below the poverty-line in India had increased. (Some studies have threatened with their results of increased proportions of people living below the poverty-line). And, the analyses of foodgrain production and buffer stocks have shown a very comfortable position, at least, since 1977-78. When the conclusions and results of the three sets of studies are considered together, a paradoxical food situation could be clearly seen. In simple words, it could be stated in the following manner. Even with greater foodgrain production and buffer stocks, more and more of the poor people consume less and

less of foodgrains. The major determinants of the paradoxical food situation and the reasons for its persistence for the past several years, (in spite of widespread PDS-operations) must be examined on a high priority basis.

In the five decades (1942-1992) of its existence, the PDS in India has passed through three major periods of food conditions. They are: (i) food scarcity periods; (ii) food self-sufficiency periods; and (iii) food surplus periods. In order to understand the dynamics of PDS, it is important to examine the nature, characteristics and magnitudes of PDS-operations during the alternating periods of food conditions. A comparative study on the roles of PDS under the three food conditions would throw useful light on the effectiveness of PDS in India. The study would also answer the question whether the PDS in India has played a dynamic role in accordance with the changing food situation or it has continued with its traditional role of being a ration supplier.

The two-market, two-price system has become inevitable in the Indian context. Even under this system, private traders in foodgrains play a major role. (Private traders distribute more than 80 per cent of the total foodgrain sales in the country). The extents of beneficial effects on the consumers, (in volume and price terms), depend, to a large measure, upon the more efficient integration and better coordination between the private trade system and the PDS. Through intensive and careful researches, newer and more beneficial integration and

coordination strategies should be developed. As long as the dual market, dual price system continues in the case of certain essential commodities, the need for more efficient integration and better coordination between the private trade system and the PDS would remain as an important area for further research.

Issues relating to Public Procurement Operations

Studies have examined the triangular relationships between public procurement quantum, production and the differential price between public procurement price and the open market price. They estimated the explanatory powers of both production and the differential price. The trend analyses of these studies have shown that the public procurement quantities fluctuate more sharply and more frequently than the production levels. (This is valid and true of all-India situation and for most of the States). The frequent and erratic fluctuations in public procurement directly disturb the supply-side of the PDS. In analysing the fluctuations, the roles of factors such as policy lapses and administrative failures have not been adequately recognised and examined. Stabilisation of the level of public procurement is of crucial importance in strengthening the supply-side of the PDS. Hence, along with production and the differential price, the factors such as policy lapses and administrative failures should be systematically studied. Such studies would be useful in minimising the fluctuations in public procurement and public distribution.

By analysing the prices and cost of production data relating to the seventies, some studies came to the conclusion that the producer levy payments, at public procurement prices, have not entailed any income loss to the farmers who sell the remaining surplus produce in the markets at the higher open market prices. In the recent years, the open market prices have increased at a faster rate than the increase in public procurement prices. In the recent years, the costs of production of cereals have also gone up considerably. In the changed situation of widening gaps between the two prices and the increased cost of production, studies should be carried out, both at the micro and macro levels, to find out the inter size-class and inter-regional variations in price realisation and profit maximisation. Studies of this kind would also indirectly measure the relationship between quantity distortions and price distortions under the conditions of dual market, dual price system.

The objective of maximisation of public procurement, (through socialisation of grain surplus), has been a vague and meaningless objective. This does not ensure a specified quantity of procurement and induces erratic fluctuations in procurement. The advantages and implications of procuring a fixed proportion of cereals, with respect to either production or marketed surplus, need to be examined carefully. Along with the criterion of the proportions of either production or marketed surplus of grains, the proportion of vulnerable population (the size of the target group) should be taken into account while determining the actual quantity of procurement. The questions of `what

proportions' and `the implications of those proportions' should be probed with special attention. Studies of this kind would help in meeting more fully the food needs of the very poor. They would also be useful for reducing the erratic fluctuations in public procurement.

Studies have found the public procurement operations in rice and wheat heavily concentrated in a few specific regions, both at the all-India level and at the levels of States. The heavy concentration has led to the problems of transportation, unhealthy competition among the producers, wasteful storage practices and harassment of producers by the public procurement agents. Investigation into the nature, trends and magnitudes of these problems could even be carried out on a region-to-region basis. Such studies assume special significance because they would focus on finding solutions not only to the incidental short-term problems referred above but also to the long-term problem of regional backwardness in agriculture.

Issues relating to Public Distribution Activities

After detailed analyses, several studies have come to the conclusion that, instead of the universal coverage, the PDS should adopt the target group approach which ensures greater beneficial effects to the vulnerable sections. However, the adoption of target group approach would necessitate the examination and analyses of a number of issues. Of the several issues to be examined, the following three questions would

attract immediate attention: (i) what are the criteria on the basis of which the really poor households could be determined? (ii) how and by whom the lists of eligible consumer households, both from the rural and urban areas, should be prepared? and (iii) whether the revamped PDS scheme, (introduced from January 1992), could ultimately lead to the complete target group approach?

Under the present universal coverage approach, the examination of incidence of beneficial effects of the PDS across different income groups presents itself as an important area for further research. This kind of research could be carried out through the collection of primary data at the micro level (villages in the rural areas and municipal wards in the urban areas). Since secondary data do not offer income group-wise purchase data, the examination of incidence of beneficial effects should rely upon the collection and analysis of primary data. The examination should analyse the incidence, at least, for three income groups of households, namely low, medium and high income groups by adopting three convenient ranges of incomes. Such studies would help for the formulation and implementation of proper PDS policies which could benefit mainly the low income groups of consumers.

Studies have found very low and highly inadequate distribution of cereals and other essential commodities for all the consumer households. The nominal and deplorable distribution has defeated the very objective of PDS in India and has raised several issues. First and foremost, it is important to analyse,

commodity-wise, the past trends in distribution. Further, the exploration of major determinants of the highly inadequate distribution should be carried out. This, in turn, would lead to the commodity-wise estimation of a standard PDS distribution which fully provides for the normal consumption requirements of all the family-members. The question whether the standard PDS distribution should be uniform throughout the country or different for different States should also be examined.

Several studies have concluded that the PDS operations in India suffer from a strong urban bias. Despite special schemes to fully cover the entire rural areas, the urban concentration of the PDS continues to be very strong. In addition to the analysis of a single point of time, as a recent study did, it will be more useful to examine the trends in urban concentration of the PDS in the entire past. This could be done for the country as well as for all the States. The desirability and feasibility of a fixed proportion of distribution, as between the rural and urban areas, not only in terms of number of FPS but also in terms of the actual distribution of commodities, should also be examined. The study should also attempt to develop a set of criteria for the determination of the actual rural-urban distribution of the FPS. Such studies would help in correcting the urban concentration and would pave the way for the wider distribution of the beneficial effects of the PDS.

Almost all studies have reported that the PDS consumers have been subjected to harassment, provocation and ill-treatment by

the FPS-managers. They have also reported, in detail, the malpractices of the FPS-managers. The PDS consumers, have remained largely inactive and lethargic and have not resorted to the grievances redressal systems. In spite of the Consumer Protection Act, 1986, the proportion of consumers, (of essential commodities), seeking the help of redressal systems has been dismally low. Specific studies should be conducted with the purpose of developing new devices and strategies through which the consumers of essential commodities could also be sufficiently motivated to take recourse to the redressal systems.

Almost all studies have reported a number of malpractices of the PDS consumers. Since the malpractices by the PDS consumers are widespread, there is the urgent necessity to curb them through periodic monitoring and research. The prevention and removal of malpractices of both the FPS-managers and the PDS consumers would increase the availability of rationed commodities which, in principle, should benefit more fully the vulnerable sections among the consumers.

The PDS-operations are the responsibility of the State Governments. Each and every State Government, (and the Union Territory Government), implements the PDS in its own way. In between the States, differences in the implementation of PDS persist mainly due to variations in their approaches, coverages of commodities, levels of administrative efficiency, coverages of rural and urban areas and the levels of food deficit. The strengths and weaknesses of the PDS implementation of different States could be captured only through inter-State comparative

studies. By studying the experiences of three or four States, at a time, and by rectifying the weaknesses found in the PDSs of some States, the working of the PDS in a particular State could be improved substantially. Thus, the fertile area of inter-State comparative studies should be explored systematically.

Some studies have indicated that the agricultural labourers, as the single largest poverty-group, deserve special attention by the PDS. Increased commercialisation of agriculture and the consequent practice of cash payments (instead of kind payments) for the agricultural operations, over the decades, have made the position of the agricultural labourers more vulnerable. Studies have also shown that the dependence of the agricultural labourers on the open market purchases of foodgrains has increased over time. The rural expansion of the PDS could be only one of the solutions. In view of their vulnerability, numerical strength, seasonal employment and seasonal incomes, the agricultural labourers need a special scheme of protection. The question of suitability and feasibility of the introduction of credit system in the PDS for the agricultural labourers should be explored. It is also important to examine whether the revamped PDS, (introduced from January 1992), could be developed to have a special scheme for the benefit of agricultural labourers.

Issues relating to Prices

Studies have found a clear inverse relationship between the public procurement quantum and the differential price between the

public procurement price and the open market price. In the recent years, the open market wholesale prices of cereals have increased at a much faster rate than in the earlier periods. The question whether the rate of growth of public procurement price (fixed by the CACP) has increased in proportion to the increase in the open market price should be examined. In addition, the implications of a proportional or non-proportional public procurement price increase could also be studied carefully. A study of this kind would indicate the degree of seriousness of the Government, with respect to: (a) public procurement operations; (b) cost of production of procurable cereals; and (c) the efficiency level of levy collections by the public procurement agencies.

Studies have shown the significant role played by the open market retail prices in relation to the PDS issue prices. The ratios of PDS issue prices to the open market retail prices and the ratios of PDS supplies to the total food consumption of households directly determine the level of beneficial effects generated by the PDS. Careful analyses of the open market prices and the PDS issue prices data would bring to light the trends and magnitudes of beneficial effects of the PDS. These analyses could be used to measure the effectiveness of the PDS as the price relief agency of the poor consumers. Researches of this kind should be carried out, both at the macro level, (by using secondary data), and at the micro level, (by using primary data). In addition to these main issues, such investigations should also analyse the implications of the official procedures adopted in

the fixation of PDS issue prices and the levels of profit margins added to the prices of PDS commodities.

Issues relating to Government Policies and Objectives

Studies have shown the phenomenal growth of farm subsidies. Both the Central Government and the State Governments liberally offer food subsidy fertiliser subsidy, power subsidy and irrigation subsidy -- the major components of farm subsidies. (For analytical purposes, farm subsidies are also classified as "producer or input subsidies" and "consumer or cost subsidies"). The analyses of trends and magnitudes have raised a number of issues. The following ones demand much closer examination: (a) implications of continuing the farm subsidies or reducing them gradually over the years or abolishing them straightaway; (b) whether consumer subsidy deserves preferential treatment over the producer subsidies; (c) in comparison to the offer of consumer subsidy, whether employment generation schemes could be the better alternatives of Government expenditure; and (d) the examination of (i) incidence of producer subsidies across different size-classes of farmers and (ii) incidence of consumer subsidy across various income groups of consumers.

In addition to the maintenance of subsidised PDS, some States offer a second-level food subsidy to the poorer consumers. (The Nutritious Noon Meal Scheme in Tamil Nadu and the Two-Rupee-a-Kilo-Scheme in Andhra Pradesh are examples of this kind). The special scheme subsidy, along with the usual PDS subsidy, make

the total food subsidy a huge amount and imposes a heavy burden on the State budgets. This has led to the strong criticism that the food subsidy bill takes away a large chunk of State resources which could be invested in more beneficial alternative State programmes. In this context, several issues are raised. However, the issues arising from the long-term implications of the special schemes to the PDS, the problems of continuity of huge food subsidy and the effects of alternative uses of the food subsidy merit careful and systematic further examination.

Only a few studies have gone into the aspects of policy formulation and strongly indicated their utmost importance in the shaping of a public intervention programme like the PDS. These studies have concluded that crucial lapses and deficiencies in policy formulations have led to the emergence of gaps between the PDS objectives and the PDS achievements. In view of these conclusions, a thorough examination into the methods and official procedures currently followed in policy-making both by the Central Government and by the State Governments should be undertaken. Such a study, as the first step, should analyse the policy statements made so far by the Central Government and the State Governments. The suggested study should also aim at standardising the official procedures to be followed at all levels. The guiding principle and objective of the suggested study should be the maximisation of the beneficial effects of the PDS.

Issues relating to Buffer Stocks and Storage

Several studies have found an enormous quantity of grain losses, both in storage and transportation operations. Since grain losses are added to the cost of storage and the PDS issue prices, there is an urgent need to minimise them, if not eliminate them. The unscientific storage practices, thefts and the careless handling methods during transportation are the major contributory factors for the grain losses. Specific studies should be carried out on the trends in grain losses, incurred by the FCI and the State Civil Supplies Corporations, over the decades. By including the scientific and management personnel in the investigation, the most scientific and safe methods of grain preservation could be developed and popularised. The question whether the existing geographical location of foodgrain godowns in the country is the best from the standpoint of pure economic criteria should be carefully analysed. Further, the wasteful storage practices, followed by the private farm households, have remained a neglected aspect of research for a long time. Specific analyses and solutions to the problems of grain losses incurred by the public agencies and the private farm households would positively contribute to the food security system of the country.

The cost of distribution of the PDS has been far higher than the private sector or the co-operative sector. Since the PDS seeks to fulfil certain social welfare objectives, it is essential to reduce the cost of distribution, and through that,

the PDS issue prices. The "procurement incidentals" and the "distribution incidentals" mainly contribute to the high cost of distribution. The huge Government subsidy arises chiefly because of the high cost of distribution. Specific studies should be launched for mitigating the problems arising from excessive stock of grains, the interest component of the carrying cost, longer periods of stocking and so on.. The issues of export of foodgrains and greater Central Pool allotments to the States should also be examined. The specific studies should aim for the reduction of cost of distribution by developing newer and innovative strategies. This would ensure the PDS consumers more grains at "fair and reasonable prices".

Other Related Issues

In addition to the major PDS issues identified for further research, a number of minor issues could also be examined by using the latest data which get published periodically. Of the many such identifiable issues, the following issues appear to be more important: the effectiveness of different methods of public procurement and the problem of levy evasion; the district-level trends in public procurement and their implications; the region-specific analysis of the per capita calorie intake and the per capita production of foodgrains; the economic effects of inter-district or inter-State movement restrictions on cereals; the major determinants of the very poor quality of grains supplied by the PDS and the methods through which the quality of grains could be improved; the need for popularising the mobile FPS and the

door delivery system; the major factors contributing to the economic viability of the FPS; the political dimensions of the Central Pool allotments and the objectives of National Food Budget; the problems of introduction of large-scale distribution of coarse grains in the PDS; the implications of a two-tier (discriminatory) price policy in the PDS issue-price structure; the case for and against the export of rice and wheat under the present conditions of surplus grains; the questions of sex discrimination in the per capita food intake among the same family members; the significance of agricultural seasonality in the various PDS operations; and the analysis of impact of natural calamities such as droughts and floods on the PDS.

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